# American Aviation

The Independent Voice of American Aeronautics

**APRIL 15, 1946** 

#### **Another Major Milestone**

A T LONG LAST the Civil Aeronautics Board has issued its first feeder airline certificates and thus a new chapter in U. S. air transport history has opened. The benfits of the commercial airplane are being extended to an entire new strata of communities under the Board's new policy. Large areas of the country long

in need of air mail and scheduled passenger service now are to be served.

The Board's attitude of caution in limiting the feeder certificates to a three-year experimental period is undoubtedly a wise one. And its note of conservatism as

to the number of feeder routes to be granted is also sound. But at a minimum one can expect a feeder certificate in almost every major area of the nation.

The chosen few who are being selected to pioneer the new era of scheduled feeder lines aren't going to find ready-made bonanzas. Not only are they faced with a low rate of carrying the mail (probably about 25 cents a mile) but they will have a multitude of operating problems in smaller communities either inadequately equipped with airfields or lacking any facilities at all. Airway aids won't be available for direct use except in some instances. But most important of all, they will be required to make frequent stops on their routes and bad weather may hold down operating performance to a serious economic degree in the winter months. The feeders will lack the hop-skip flexibility of the major carriers.

Nonetheless there is a ready-made demand in the local areas for scheduled air service—especially for air mail. The market for passengers remains to be determined. Everyone in aviation has had high expectancy that, with proper local transport equipment, feeder routes would attract a steady flow of traffic. Now that the CAB has acted in establishing a feeder policy, the answer to this question will be forthcoming when the new companies are able to get under way.

The first feeder decisions unquestionably will have a psychological uplift throughout the industry. The new lines open up opportunities for veterans trained in aviation during the war. The air is cleared for the manufacturers whose plans for feeder airplanes have been held in abeyance waiting for the government's policy. New capital and new ideas are given opportunities. And the citizens in scores of important but heretofore isolated communities will get a chance to tie in with the existing airline network.

It is heartening that the Board chose the Rocky
(Turn to Page 6)



#### Veteran Figure Joins Eastern

C. W. France, formerly vice president of Curtiss-Wright Corp. and a pioneer in early airline operations, has been elected vice president in charge of maintenance and engineering for Eastern Air Lines, with headquarters at Miami.

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### fleetest of the fleet

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# merican Aviation

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April 15, 1946



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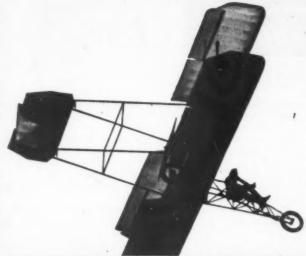
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American Aviation Directory: Published twice a year, Spring and Fall. Complete reference data on administrative and operating personnel of eirlines, aircraft and engine menufactures, accessory and equipment manufacturers, organizations, schools, U. S. and foreign aviation groups and departments, etc. Completely cross-indexed by companies, activities, products and individuals. Single copy \$5.00. Fall-Winter 1945 issue now available. DAVID SHAWE, Managing Editor.

American Aviation Traffic Guide: Monthly publication of airline schedules, rates and regulations for passanger and carge transportation by commercial air transport. Supplements furnished subscribers covering changes occurring between issues. Subscriptions: U. S. and Latin America \$5.00 one year (12 issues and supplements); Canada \$5.50. All other countries \$6.50. Published and revised from editorial offices at 139 North Clark Street, Chicago 2, Illinois. (Telephone: State 2154). H. D. WHITNEY, Managing Editor.

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### How Chicago and Southern's Anderson Brothers got the "Wright" start

Like Orville and Wilbur Wright, Hap and Doc Anderson have spent their lives pioneering in aviation. Doc began tinkering with flying machines in 1915. Hap got off to a flying start by barnstorming in a "Flying Jenny." The Andersons have both been with Chicago and Southern Air Lines since its beginning in 1934. Hap is now chief pilot of the Chicago-New Orleans division. Doc is now superintendent of engineering.



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1,980,000 MILES of flying behind him, L. D. (Hap) Anderson once was chosen by the Air Transport Association for a painting which symbolized the character of the airline captain. Airmen marvel at Hap's ability. He can bring a DC-3 down without spilling a drop from a cup of water held in a passenger's hand. Under his leadership Chicago and Southern's captains and first officers have become one of the best staffs of airline pilots in the world.



R. L. (Doc) ANDERSON'S own engineering developments played a large part in earning for Chicago and Southern the Aviation Maintenance Award presented by Aviation Magazine for "outstanding maintenance and developments." Doc and his staff developed the pressure ignition harness, the quick-change flight panel, magneto ventilating system, centralized radio control panel, oil temperature regulator mountings and wing lights for de-icers.

As a result of the leadership and vision of such men as Hap and Doc Anderson, Chicago and Southern Air Lines has made outstanding contributions to the operation of commercial air transportation and the advancement of aviation. Free competitive enterprise encourages each company to develop new ways of doing

things which will in turn benefit the entire airline industry. In the air and on the ground you can count on Chicago and Southern Air Lines for such leadership and vision.



### CHICAGO AND SOUTHERN AIR LINES

"The Route of the Dixieliners"

(Continued from page 1)

Mountain area for its first decision. Of all of the sections of the country needing speedy communications, this is probably the most important. Mines and ranches which are important to the national economy have been isolated from major transportation networks. It is vital that

these areas get fast air mail service.

Historically, the CAB feeder policy is an important forward step. In 1938 when the Civil Aeronautics Act was created, the first Board was bound to accept an existing network of airlines and in the years following it could do little but extend, alter, or shuffle within the framework of the existing system. And this network connected virtually every important city in the country. Two big problems remained to be solved, the international and the feeder policies. Both policies have now been established.

Two problems remain—and each of them complex. One is the question of the cargo carriers, and the other is the regulation in greater or lesser degree of non-scheduled commercial flying. The Board has built a solid foundation thus far.

#### Another Fine Appointment

PRESIDENT TRUMAN is doing well by the Civil Aeronautics Board which he helped to create when he was Senator in 1938. Following up the excellent appointment of Clarence M. Young to fill the Edward P. Warner vacancy, the President has selected James M. Landis to succeed L. Welch Pogue as chairman when Pogue leaves late this spring. Much as the departure of Pogue is regretted, his successor will be well received in the industry. It is a vast relief to know that the chairmanship will not go to a political hack, but will go to a man of exceptionally fine legal background and wide government experience.

#### Let The States Do It

THERE IS VERY LITTLE argument to be found any-THERE IS VERY LITTLE arguments to the server where about Federal regulation of commercial interstate aviation. It is quite generally conceded that anything pertaining to commercial flying, above the status of the purely local charter operator, belongs in the Federal realm and certainly the whole commercial aviation enterprise could be harmed by state interference.

But how about the private flyer and the personalowner airplane? This year the CAA plans to levy a modest fee for pilots' and all other airmen's certificates and also for the registration of all civil airplanes. To handle the increasing number of pilots, mechanics and airplanes the CAA has had to request additional personnel. Its whole registration system is unwieldly and time-consuming, to say nothing of being costly.

In all frankness, just why should the personal flyer of Oregon or Arizona or Illinois have to obtain a federal pilot's license, and register his airplane with the federal government, when the states have been able to handle automobile licenses with ease and a minmum of red tape? When civil airplanes number in the hundreds of thousands instead of the present 30,000, why should the Federal government assume the costly burden of maintaining registry? And when pilots number a million, just what is the sense of maintaining Federal licenses?

Up until now one sound argument for the Federal government assuming such close and minute jurisdiction over the individual in aviation has been the need for uniformity and high standards. But the major problems of uniformity have been solved. An automobile license granted in California is recognized and respected in New York and in West Virginia. By the same token a pilot's license issued in Michigan would be valid for flying through New Mexico.

Not all states are yet equipped to handle registry of airplanes and licensing of pilots, but the expected size of civil aviation, in terms of pilots and airplanes, indicates that the jurisdiction may well gravitate to the states and that the Federal government will be responsible for uniformity in inspection, tests, and other items requiring major supervision without the detailed responsibility for

enforcement.

#### Shows for the Public

IT IS TRULY unfortunate that warplanes and other aerial equipment have been kept out of reach of a public that is genuinely interested in seeing its instruments of air power at close range. Criticized already for too much free participation, the Army Air Forces, and the Navy, may only take part in shows from now on when their costs are underwritten. The aircraft industry, looking ahead toward lean years and fearful of depleted cash reserves, considers the exhibition of warplanes which they merely built and do not own, to be out of their field of public relations.

The well-sponsored National Aircraft Show at Cleveland several months ago was given a turn-down by the manufacturers and the AAF was quite put out. The aircraft show just ended in New York likewise lacked industry sanction. The big forthcoming international show at Omaha late in July will probably not have

official industry sanction.

The public, in the meantime, is not only confused but is unsatisfied. It wants to see some airplanes.

The Aircraft Industries Association show policy-very late in being formulated-calls for two indoor shows a year, one East Coast and one West Coast. This looks like an arbitrary and unimaginative compromise, for the

midwest is certainly deserving of a show.

What is needed in the public interest is a series of regional shows-real exhibitions of airplanes of all types -under the joint auspices of the armed services and the industry, and with smart management to foot the bills through low admission costs. Unless some real attention is given to the show idea, the public is going to get a very erroneous idea of America's airplanes and aircraft industry through the incomplete and inadequate shows now in progress this year.

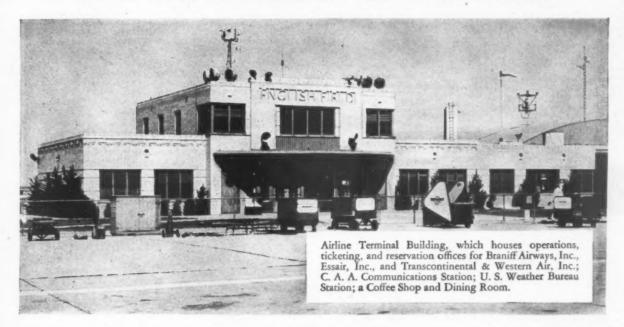
Some day the industry will need public support. Although the armed forces are the primary customers, the armed forces are, in reality, the public. The public believes it helped build a lot of airplanes during the war: it now wants to see what it got for its money. And it has a right to see. The major problem is to work out a real show policy that gives everybody a break and

which operates on a self-supporting basis.

WAYNE W. PARRISH

### ENGLISH FIELD, Amarillo, Texas

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Blessed with excellent terrain and a high percentage of flying weather, its modern facilities serve an increasing number of private planes.

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Above—Panorama of buildings on English Field showing, from left to right, Airline Terminal Building, Private Fliers Terminal Building, Hangar No. 1, and Hangar No. 2.

As lefs—C. H. Knupp, one of the people who helped make English "the friendly field" has been Airport Manager for the past 11 years.





Good Work

To the Editor:

My congratulations to American Aviation and to you in particular as editor for your aditorial in the Apr. 1 issue, "Cut CAA in Half."

That article is very timely, very well put and from my limited post of observation, I think correct.

Keep up the good work!

ANONYMOUS.

Quarter It

To the Editor:

Received the Apr. 1 edition of AMERICAN AVIATION this morning, and after reading your editorial, "Cut CAA In Half," I wondered why you did not recommend quartering it. It is an excellent editorial, the last line of which really carried a punch. Obviously,

which really carried a punch. Obvious you have hit their prime objective on the hear ANONYMOUS.



PATH OF FLIGHT and REALM OF FLIGHT, by George Sidney Stanton, Civil Aeronautics Administration; sold by U. S. Government Printing Office, Washington, 40c and 60c, respectively.

These two booklets, or short manuals, are the first in the series to simplify the explana-tion of various aspects of flight. They are good jobs. The author is a consultant for the CAA aviation training service.

Realm of Flight runs 41 pages and has four-color illustrations and drawings, an innova-tion for the Government Printing Office. As government publications go, it rates high. It presents practical information about weather in relation to the piloting of private aircraft and the drawings are especially good.

Path of Flight contains practical information about navigation of private aircraft and contains a sample aeronautical chart and ample illustrations. Pilotage, dead reckoning, radio navigation and celestial navigation are all described in the 31 pages.

TEACHERS MANUAL FOR SCIENCE OF PRE-FLIGHT AERONAUTICS, edited by George Frenklin Stover; (Air-Age Education Series) Revised Edition; Macmillian Co.; 213 pages. A teachers' guide and manual to accom-pany the textbook: Science of Pre-Flight Aeronautics, a publication of the Aviation Research Group, Teachers College, Columbia University. Covers the curriculum of a well-planned high school course. Has an excel-lent list of supplementary and source ma-terial which would be of interest to others as well as to teachers.

THE STORY OF AMERICAN AVIATION, by Jim Ray; John C. Winston Co.; 102 pages; \$2.50.

An illustrated history of aviation in America. Profusely illustrated with colored drawings and diagrams. The author is a filer, author, illustrator, and creator of the "Wings Over America" program. The book would appeal to young students.

FLYING STORIES, by Guy Gilpatric: E. P. Dutton & Co., 1946; 287 pages; \$2.50
This is a collection of Gilpatric stories, some of which have appeared elsewhere. Stories trace in fictional style the progress of aviation over a period of 40 years. Introduction reveals little known facts about Gilpatric's own early experiences as a fiyer.

THE CASE AGAINST THE ADMIRALS, by William Bradford Huie; E. P. Dutton & Co. New York; 210 pp.; \$2.50.

New York; 210 pp.; 22.50.

The author of The Fight for Air Power has written an explosive, brisk and very readable book on why the United States must have a unified command. Highly controversial from start to finish, the book should accomplish a great deal of good for air power even though the author wasn't too careful in mustering all of his facts.

Much more than a plea for a unified command, the book shashes out mercilessly at all opponents of air power, emecially the prevar

mand, the book slashes out mercilessly at all opponents of air power, especially the prewar admirals and generals. Aviation enthusiasts will lick their chops in glee at many of the charges against the stupidities that held back development of air power. His case against the admirals is pretty sound, in the main, but it was a case equally sound against many of the tor. Army command

it was a case equally sound against many of the top Army command.

As for unification, Mr. Hule presents no particularly new arguments. Back of most of his reasoning is a basic appeal for strength-ening our air power and if unification does the job, then that's the proper answer. The book pulls one up with a start to realize that it has been a very few years since air power was kept under wraps. Definitely worth read-ing.

Of particular interest is the chapter on General Hugh Knerr and the origin of The Fight for Air Power which was to have carried Knerr's name as co-suthor. How Knerr's position with Sperry was threatened, how Knerr tried without success to get back into Knerr tried without success to get back into active service before the war, and how he was finally jerked into service as a means of keeping his name off the book, makes julcy reading. One can get pretty mad reading this book but in reality it is just another chapter in the long upward struggle of recognition of the airplane. Hule's new book won't do any harm—it may do expressed. do any harm-it may do some good.

\_W. W. P.

### Booklets

A complete transcript of the proceedings of the Air-Age Institute For Teachers, held in Omaha last January under the joint sponsor-ship of the Omaha Aviation Committee, the Omaha Public Schools and the University of Omaha, has been published by the University of Omaha and may be obtained from the uni-versity for \$1.25 a copy.

A symposium on postwar aviation, based on eight discussions presented in N.Y.C. by Town Hall Workshops and titled "Wings Over One World," has been published by the Air-Age Education Research, 100 E. 42nd St., N.Y.C.

"Aircraft Financing." prepared by the Con-sumer Credit Department, American Bankers Association, 22 E. 40th St., New York 16, N. Y., centains general information on financing air-planes, forms required by CAA, finance forms. direct loans to individuals, aircraft financing via retail dealers, and dealer's floor planning.

via retail dealers, and dealer's floor planning.

Airport Accounts, 28-pp, booklet by Joseph
M. Cunningham, CPA and First Deputy
Comptroller of New York City, is available
at \$1.25 per copy from the Municipal Finance
Officers Association, 1313 E. Sixtieth St. Chicago, Ill. Intended for those who operate
or plan to operate airports, the new publication includes a system of accounting for both
large and small airports, with each account
title explained in detail.

"Wherever Man Piles" is a new illustrated brochure issued by Hamilton Standard Pro-pellers giving a history of Hamilton Standard and the development of the hydromatic propeller.

A pamphlet containing a summary of rules A pampher containing a summary of rules governing operation of aircraft, information necessary to pass the student's pilot written test, and some general suggestions for the student's development in aeronautical knowledge has been issued by the Examination Section of the Airmen Service of the CAA's Office of Safety Regulation.

### Wings of Yesterday

#### Fifteen Years Ago

Amelia Earhart established autogiro altitude record of 18,415 feet at Willow Grove, Pa. (Pitcairn, Wright Whirlwind engine) (Apr. 8, 1931).

National Aircraft Show was held at Detroit, Mich., under the auspices of the Detroit Board of Commerce and the Aeronautical Chamber of Commerce (Apr. 11-19, 1931).

Flying a Bellanca Pacemaker, Walter E. Lees and Frederick A. Brossy estab-lished an unofficial duration record of 74 12 minutes at Jacksonville, Fla. hours, (Apr. 12-15, 1931).

Ruth Nichols established women's speed record of 210,636 mph at Carl-ton, Mich. She piloted a Lockheed Vega, equipped with a Pratt and Whitney Wasp engine (Apr. 13,

The Second National Conference on Aeronautical Education was held at Detroit (Apr. 14-15).

#### Twenty-five Years Ago

The commercial blimp, Goodyear, was used in aerial survey, Los Angeles (Apr. 15, 1921).

Dean Ivan Lamb flew Central American Andes, Sula to Tocontin, Honduras, 18,000 feet alti-tude, in a Bristol (Apr. 18, 1921).

Extensive mercy patrol work was done by airplanes during violent earthquakes in Argentina and Chile. They were the only means of communication in the devastated areas (Apr. 18, 1921).

The launching of the first aero-marine Navy civilian flying boat was witnessed by the Secretary of the Navy and other officials on Potomac River at Washington (Apr. 22, 1921).

Lt. Col. T. C. Turner with two U. S. Marine Corps D.H.-4-B. planes arrived in Washington, D. C., after a 4842-mile round-trip flight to Santo Domingo (Apr. 22, 1921).

First Air Squadron, U. S. Marine Corps, completed photo mosaic map of Domini-can Republic coastline (Apr. 23, 1921).

### Obituary

#### Walter A. Hamilton

Walter A. Hamilton, 44, special assistant to Paul E. Richter, executive vice president of TWA, died in Kansas Cky on Mar. 28. Hamilton was active with on Mar. 28. Hamilton was active with Richter and TWA President Jack Frye in the organization in 1926 of the Aero Corporation of California, TWA predecessor company. He resigned as TWA superintendent of maintenance in 1939 to become a director of Douglas Aircraft Co. and was called to active duty with the Navy in 1942. Hamilton was discharged as a captain last November.

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CAA's Transport Service: A few issues ago the skepticism of certain industry people concerning the use of the several four-engined C-54s and the fleet of C-47s which the CAA has acquired from surplus, was reported here. Since then has come confirmation that the CAA has been transporting personnel and equipment between the U. S. and Alaska and that free rides have been given to non-CAA people and to some bits of cargo. Most aviation people don't quibble about CAA carrying press and government people in its planes, but they do fear a regular transport operation by CAA will grow into a full-fledged encroachment of private industry.

Report on Lighter-Than-Air: A comprehensive study of lighter-than-air craft is reported to have been submitted to the Air Coordinating Committee by one of its subcommittees. Although it contains some conclusions, the study is not believed to recommend for or against a government lighter-than-air program. The Navy still is not interested and no government agency seems willing to sponsor such a program, which reportedly would require an initial \$50,000,000 appropriation.

Airlines Carry the Mail: There has been a decided improvement in the way airlines are carrying the mail. Handling is better, and the carriers are making certain that the mail gets through. Following recent fines levied against the airlines by the Post Office Dept. (AMERICAN AVIATION, Apr. 1) top management stepped in, and the situation has been greatly improved.

U. S. Lines Lose Out: The British are using currency exchange regulations to make sure that British travelers fly on British aimplanes wherever there is service. The non-priority British traveler is allowed \$100 (\$400) of foreign exchange for any destination outside the sterling area in the course of 12 months. In issuing the exchange, the banks deduct the foreign exchange equivalent of any sterling spent in the U. K. on travel by foreign means of transport. If British transport is available, there is no deduction. All of which makes it tough on U. S. airlines to get any business from British subjects in the sterling area. It's an economic squeeze justified today because the British have a lack of dollars—but will it be continued? There will be much more on this subject later.

Clarence Young in Violation?: The new member of the Civil Aeronautics Board, Clarence Young, is in for some ribbing by his colleagues. The Board has scrutinized carefully all interlocking directorships of airline men and even went so far as to insist on formal approval of interlocking directorship of a United Air Lines director who was also a director of the freight subway company in Chicago. Now it turns up that Young is a director of the California Street Railroad Co. which operates a cable car on one of San Francisco's steep hills, and there is little doubt that the CAB will investigate in minute detail his relationship with another form of transportation. After all, these cable car boys might have aspirations in the air—they do up and down same as an airplane.

Cargo Problem is Complex: Look for many things to happen this year with regard to proposed regulations for non-scheduled cargo operators and for plans of airlines to furnish better cargo services. Biggest of all problems facing the proponents of regulation for the bigger cargo haulers is how to bring them under CAB without injuring the purely local fixed base operator which airlines want to encourage. Final form of distinction may rest on gross weight of airplanes operated. Airlines don't fear passenger competition from non-scheduled lines any more following the high winter peak, but more than one airline official is willing to confess that the major carriers have moved too slowly on cargo—and maybe too late.

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CAA Tactics Disliked: Commercial operators and private pilots of all kinds are burned to a crisp over the tactics of CAA airport men who are telling local communities and states that the way to finance and maintain airports is to levy additional aviation gas taxes. They feel that the CAA is going to cause no end of trouble by such buck-passing and that it is entirely outside the province of the CAA to suggest local taxation. Situation has reached the bitter fighting stage.

### in and Trends Based on the Fortnight's Top News)

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About Those Airways Charges: CAA is making no secret of the fact that it has a committee at work studying the system of charges which it expects to levy on airlines and other system of charges which it expects to levy on airlines and other commercial (and perhaps private) users of air navigation facilities. Meantime the airlines are working up data to show how much and how little of the facilities are used by them. The debate is going to rage hot and furious one of these days when the CAA reveals its own scheme of charges. Any heavy set of charges could very seriously affect the airlines' financial picture and any three-cent-a-mile passenger fare could be forgotten

No Interest From Latin America: The extent to which the Latin American countries have virtually ignored PICAO (Pro-visional International Civil Aviation Organization) at Montreal was evidenced when the Council reconvened recently. With five seats on the Council, only one Latin American member showed up and that member was from Peru, one of the few South American countries to participate fully in international affairs.

Export Policy Shortsighted: Almost all of the U. S. aircraft manufacturers (except the big leaguers) are devoting 100% attention to the domestic market. When domestic demands are met, they say, then they will turn to the export field. But in the opinion of experts they will be too late. Britain is putting export first, is making big inroads especially in South America. U. S. companies, in addition to overlooking the long-range export potentials, misjudge the foreign markets. In South America the light airplane that is used for recreation in the U. S. is a real item of utility down there and the utility market pays off far more in the long run than the purely pleasure market.

Kicks in Paris: The State Dept. has received its full share of criticism about its civil air attache in Paris, Howard Railey. Railey's brand of French, (an acquired Harvard accent on top of a Southern, plus French) drives Americans slowly crazy, while the emphasis on receptions and entertainment has set all-time highs. Meantime French aviation writers are given brush-offs and U. S. aviation industry people (unless they be of high social rank) are given the light and easy treatment with an attitude of "What are you doing over here anyway?" Socializing Railey has gotten far off the beam of his civil air duties, is the concensus. But he just 1-0-0-v-e-s Paris. It's all so dashing and cute.

Look for Decisions: The Civil Aeronautics Board can be expected to get out several important decisions in the near future, including some more feeder cases, the Hawaiian case and the long-awaited Latin American case. One of the prime movers in this flurry of activity has been Vice Chairman Oswald Ryan, who has been pushing things along (Chairman L. Welch Pogue was absent from the country, working on the important bilateral agreement with the French in Paris). Chances are CAB's docket will be reasonably clear by the time James M. Landis takes over as chairman.

Short Aviation Observations: Lockheed's Constellation soon will have a rival for national advertising and publicity space soon will have a rival for national advertising and publicity space in the Douglas DC-6. . . . Douglas is readying a major national advertising program which will be timed with deliveries to purchasers. . . The Glenn L. Martin project design for United Air Lines has been officially designated the Martin 304. . . Well founded reports indicate that Gerald Brophy, U. S. delegate to the Provisional International Civil Aviation Organization, and Six Productok Boughill British delegate may regime from the the Provisional International Civil Aviation Organization, and Sir Frederick Bowhill, British delegate, may resign from the Council, possibly after the Assembly meeting in May when the 43 member nations are expected to attend. . . . The amount of secret development work of a military nature still under way in U. S. plane factories would surprise the general public. . . . North American Aviation, Inc., for instance, has found it necessary to warm employes through its house organ not to talk about restricted Army and Navy projects. . . The airlines are running into some of the local pride angles of public relations which the railroads have had to buck for years. . . When the Air Transport Association sponsored publicity and advertisements of "typical examples" of airline service, some of the cities which were not mentioned complained bitterly. Omission of Baltimore, said that city's Association of Commerce, "does injury to our pride and also seems curious in the light of airplane activities in Baltimore."

CLIPFORD GUEST

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### Bags for gasoline make flying cheaper

To EAT bullets and seal the bullet hole was the wartime purpose of rubber fuel cells. But during the war it was discovered that these cells also prevented the leakage-through-the-skin which often happened in metal gasoline compartments, sealed by riveted seams or other fastenings. This would mean savings of hours of maintenance for any airplane and is one of the things helping to make today's flying cost less.

So today's airplanes are profiting by this wartime lesson. B. F. Goodrich is making thin-walled rubber bags which line the fuel compartments to add a new factor of safety to private and commercial aircraft. In the picture, one of these new cells is being installed in a new Douglas airliner.

B. F. Goodrich has developed bladder cells covering weight and strength requirements for all types of airplanes. A paper-thin tank would be suitable for relatively small gas loads which would not be subject to much sloshing, while heavier tanks would be necessary for the larger volume loads. However, as loads increase, the relative weight of the tank decreases.

For better design, bladder cells should be designed into new ships, but it should not be assumed that the cells cannot be adapted to ships now flying. They can, and B. F. Goodrich engineers are eager to show you how. For further information, write to The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.

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FIRST IN RUBBER

# CAB Launches Feederline Experiment

Decision in Rocky Mountain Case Creates 2 Systems To Be Operated by Ray Wilson and Summit Airways

By DANIEL S. WENTZ, II

A NATION-WIDE experiment in local and feeder air transportation was last fortnight with a decision in the Rocky Mountain Case creating two feeder lines to be operated by Ray Wilson, Inc., and by Summit Airways, Inc. The Board's opinion in the first of the regional feeder case to be decided, although cautious about the future prospects of local air services, was concrete evidence that short haul operations will be thoroughly tested along the lines laid down by the Board in its Local-Feeder-Pick-up Investigation Opinion. For prospective feederline operators, the opinion was good news, for it meant that the Board was at last ready to move ahead with the actual certification of new companies.

The opinion carried a highly important statement of guiding principles, outlining clearly the Board's views on short-haul services, and sketching the pattern by which other companies all over the U. S. eventually will be certificated on a temporary basis to test this type of service. The Board was cautious about the degree to which the public will accept, utilize and support local services. "Our greatest difficulty," CAB said in its opinion, "is in reaching a sound judgment on the extent to which the various forms of surface transportation facilities will offer more attractive means of conveyance between small cities separated by relatively short distances. Despite the boundless enthusiasm shown by the cities to be on the air map of this country, the tickets will be paid for by individuals, each acting on his own judgment as to whether he can reach his destination more convenient by the train, the bus,

more convenient by the train, the sus, private automobile, or the airline. Civic pride will not enter into that decision."

To test the ability of the airplane to penetrate this short-haul market, where competition from surface transportation admittedly will be at its stiffest, the Board declared a policy of authorizing "a reasonable amount of local service throughout the United States on an experimental basis." It stated that this experimental program would provide actual traffic experience, non-existent now, "which can be effectively used as a guide on making any future additions to the service which may be warranted."

which can be electively used as a guide on making any future additions to the service which may be warranted."

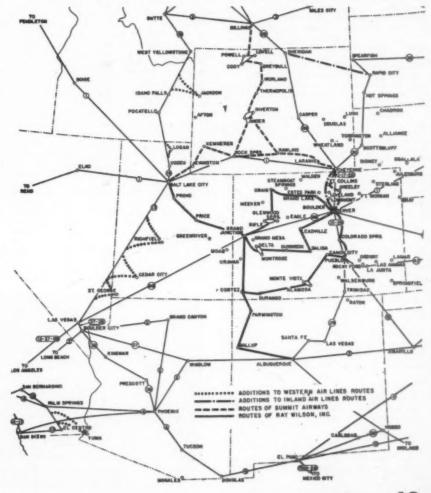
As safeguards for "the over-all economy of our air transportation system and for the financial obligation of the government in the form of mail compensation" the Board also declared that it planned to certificate only those feeder systems which showed "a justifiable expectation of success at a reasonable cost to the government" and these for three-year periods only. Some observers doubt whether this three year period will provide a sufficient time for getting a local

airline underway, in view of the multitude of required technical details such as certification by CAA of procedures, planes and pilots. It is believed, however, that the Board will tend to take a broad view of these attendant difficulties, and will make necessary allowances to permit actual passenger operations over a full three-year period.

Companies temporarily certificated, however, will have to prove to CAB that their operation is serving a real public need and that they are making every effort to reduce their dependence on mail pay support. "We cannot emphasize too strongly," CAB said, "that the carriers authorized to operate such services will be expected to be on a constant search for methods of achieving economies of operation. The issuance of temporary certificates will give a measure of as-

surance that efforts in this direction will be made, and provide a safeguard against a static or progressively increasing dependence on the Government, and also will permit the granting of permanent status only to such services as have been shown to be capable of operation without undue cost to the Government."

In determining whether the public convenience and necessity require a given feeder service, the Board said it would consider, among other things, "the importance to our nation of linking smaller communities with air service where there is the best prospect of its financial success, as well as, of course, the question of whether the communities involved will benefit by substantial improvement over the existing surface transportation facilities." Among the factors entering into this consideration, the opinion listed the distance of a community from its trading center; travel times over existing means as compared with the estimated air travel





time, including travel time to and from the airports used; and the conditions of intervening terrain which may best be overcome by the inherent advantages of air transportation.

In the Florida Case opinion, also issued last fortnight (see p. 46), the Board stated that in general, it would tend to place local services in the hands of operators who have a particular knowledge of a primary interest in the actual ter-ritory they plan to serve. The same opinion also made clear CAB's view that the operation of local services by new companies whose future success or failure depended entirely on their efforts to de-velop and promote local service was pref-erable to having smaller localities served as intermediate points on existing car-

riers' routes.

Ray Wilson, Inc., was certificated for five routes, (a) between Salt Lake City and Grand Junction, Colo., (b) between Grand Junction and Albuquerque, N. M., (c) between Denver and Grand Junction, (d) between Denver and Grand Junction, and (e) between Denver and Grand Junction, and (e) between Denver and Context Colo., all, vie. various, intermediate Cortez, Colo., all via various intermediate points shown on the accompanying map. The certificate issued designates these routes as points shown on the accompanying map. Incertificate issued designates these routes as Route 73 and provides that each intermediate point shall be served on each schedule operated. The fact that Wilson had filed his application early in 1939 was held by CAB to have some weight in selecting his proposed service over that of Mountain States Aviation, Inc., which also was found to be well qualified to operate local routes in the Rocky Mountain area.

To Summit Airways, Inc., went a certificate for a route (a) between Billings, Mont., and Denver, (b) between Billings and Salt Lake City, and (c) between Salt Lake City and Denver, all via various intermediate points which must be served on each schedule. Summit's route was designated as Route 74.

The same opinion authorized Western Air

The same opinion authorized Western Air Lines to add Richfield, Cedar City and St. George, Utah, and Yuma, Ariz, as intermediate points on its Route 13, and to serve Logan. Utah, and Jackson, Wyo., as stops on its Route 19.

Route 19.

Provision for an additional link between the Western and Inland route systems was made by extending Inland's Routes 28 and 35 from Cheyenne to Denver, making Cheyenne an intermediate point instead of a terminal. Inland also was given a link between Rapid City, S. D., and Sheridan, Wyo., through an extension of its Route 35.

The decision denied applications in the Rocky Mountain area by Nine Peeder assurants.

### 5 Carriers Put \$31/2 Million Into New Building Plans

#### **Airlines Reveal Programs To Expand Ground Facilities**

FIVE CARRIERS last fortnight announced plans for the acquisition of expanded ground facilities, whose new construction alone will account for expenditures in excess of \$3,500,000. These were the highlights:

• Northwest Airlines is considering acquisition of the \$21,000,000 Boeing Aircraft plant at Renton, Wash., as permanent headquarters and chief maintenance Also being considered are the bomber modification facilities at St. Paul airport as an overhaul base.

 National Airlines began construction on a new maintenance base at Miami, which with other maintenance and operating projects, will mean a million-dollar expenditure. General and maintenance offices will be moved to Miami from Jacksonville when construction is completed.

Transcontinental & Western Air expects

to complete by September a \$500,000 nose hangar at Los Angeles municipal airport which will house the carrier's entire West Coast maintenance shops. TWA's new system engineering and overhaul base at Fairfax Airport, Kansas City, Kans., will be in operation before summer.

• Western Air Lines began construction on a new \$1,500,000 hangar and mainon a new \$1,500,000 hangar and man-tenance building at Los Angeles munici-pal airport. When the facility is com-pleted, Western will move its home main-tenance facility from Lockheed Air Terminal, Burbank.

 United Air Lines plans to concentrate all of its aircraft maintenance in San Francisco with a virtual tripling of its mainte-nance personnel and a quadrupling of its equipment at that point by 1955. San Francisco plant facilities would be increased from the present 125,000 square feet to nearly 500,000.

Northwest's consideration of the Renton plant was prompted in part by the recent freeze on heavy construction, which stymied the carrier's plans for a new operations-maintenance facility to cost between seven and eight million dollars. Boeing is scheduled to vacate the Renton plant about June 1.

The Renton property would give North-west nearly 100 acres of ground with more than two million square feet of space in hangars, warehouses, shops and offices. It

is six miles from the new Bow Lake airport, which will serve both Seattle and Tacoma,

If the West Coast establishment is acquired, Northwest would transfer all of its overhaul activities and nearly all of its clerical and supervisory personnel from the Twin Cities. However, consideration of the St. Paul bomber modification center may temper those plans, the company said.

TWA's nose hangars at the Los Angeles airport will measure 425 by 85 feet with a 50-foot overhang for servicing Constellations and other four-engine equipment. A two-story service building, including shops, will occupy a 35-foot strip along the full length of the hangars.

At Fairfax airport, TWA has taken over

the hangars and buildings formerly used by North American Aircraft Co., for B-25 modification under a five-year lease arrangement from RFC. The Kansas City overhaul base has nearly 300,000 square of working space, compared with 108,000 at the Kansas City (Mo.) municipal airport. Conversion costs at Fairfax will total \$600,000.

Western's new facility at Los Angeles municipal airport covers an area of by 600 feet, will be completed about Nov. The building will feature two cantilever nose docks plus closed hangar space sufficient to park four four-engined craft. Space is also provided for shops on the

first floor and general operations offices and stock rooms on the second floor. A roof garden and commissary also are included in the plans.

#### **Airlines Say Ceiling Prices Restrict Seafood Shipments**

The domestic airlines last fortnight told the OPA that local ceiling prices are restricting volume shipments of fresh fish and seafood by air, asked the price con-trol agency to allow the cost of air transportation to be included in market price regulations.

Secretary Emery F. Johnson of the cargo traffic section, Air Transport As-sociation, told OPA that amendments made in regulations last summer to cover fresh fruits and vegetables also could be applied to salt water edibles. The amendments require that air-borne produce be distinctly labeled and packaged.



Western Air Lines' New Hanger and Maintenance Facility

### Committee Cuts \$11 Million From CAA's 1947 Funds

#### House Group Recommends Repair Base for 231 Craft

By GERARD B. DOBBEN

THE HOUSE appropriations committee on Apr. 9 cut almost 11 million dollars off funds requested for the operation of the Civil Aeronautics Administration in the fiscal year 1947, starting July 1, 1946.

At the same time the committee recommended establishing at Oklahoma City a CAA base for the repair of the 231 CAA-owned aircraft.

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Asserting that CAA has "one employe for every three airplanes certified for airworthiness," the committee, in reporting out the State, Justice and Commerce Departments appropriations bill, approved \$63,450,000 for CAA. This is \$10,917,000 under the \$74,367,000 recommended by the Budget Bureau for CAA in fiscal 1947.

The Budget's recommendation represented a \$36,680,056 increase (almost 100%) over CAA funds for the fiscal year ending June 30, 1946. It was revealed that CAA had asked the Budget Bureau for slightly more than \$96,000,000.

for slightly more than \$96,000,000. The proposal to establish a CAA repair base at Oklahoma City had aroused intensive opposition in many segments of the aviation industry during the past several weeks. Although approved by the committee, it is expected that the repair base issue will be fought out on the floor when the appropriations bill is debated.

William A. M. Burden, Assistant Secretary of Commerce for Air, and T. P. Wright, Civil Aeronautics Administrator, told the committee that the request increase represented CAA's attempt to provide for civil aviation the great technical advances made during the war. These spokesmen emphasized that the increase in appropriations did not represent a sharp upward trend that will continue indefinitely but rather an attempt to take care of the backlog of vitally important elements such as airway installations, which were held abnormally low during the war, and the gearing up of the Government's civil aviation machine to take on its peacetime job both domestically and internationally. The testimony reveals that the CAA offi-

The testimony reveals that the CAA officials appeared before a friendly, yet highly debt and tax conscious subcommittee headed by Rep. Louis C. Rabaut (D., Mich.) The tenor of some of the questions asked by the committee, particularly on some of the new ventures contemplated by CAA, indicated that when the bill reached the House, the final figure to be recommended will be considerably below the amount recommended by the Budget.

Increases for 1947 were listed in the committee hearings as follows: General administration, \$925,471; establishment of air navigation facilities, \$18,680,000; maintenance of air navigation facilities, \$8,000,000; technical development, \$441,323; enforcement of safety regulations, \$2,510,053; airport advisory service, \$9,512; maintenance and operation of aircraft, \$1,168-179 and maintenance and operation, Washington National Airport, \$85,551. This brings the total of increases to \$31,821,056. To this must be added \$4,859,000 which represents a supplemental request after the original estimates were submitted.

\$31,821,056 increase in CAA's original re-Burden pointed out that 83.9% of the quest is for the establishment and maintenance of air navigation facilities. Stating these facilities were outmoded even before the war, Burden said they were much more out of date today; that the U. S. is in the anomalous and even dangerous position or trying to develop air transport and private flying with the last word in airplanes but with an outmoded system of ground facilities.

of ground facilities.

Completion of the program for the installation of very high frequency radio ranges, instrument landing systems and approach light lanes started last year after a three-year delay was urged by Burden in the interests of safety and efficiency of operation.

Burden pointed out that another factor affecting the increase in the 1947 appropriations was the great expansion in all forms of civil aviation which will increase CAA's work load. Furnishing the committee the estimates of this expected growth by categories, Burden said the expansion would mean greatly increased work loads for all divisions of CAA and particularly for its safety regulation division.

Burden estimated that by the end of 1946, the domestic air transport and civil aircraft manufacturing companies will be employing some 100,000 persons. He said the air transport industry will pay some \$20,000,000 in income taxes in the calendar year 1945 and that the transportation tax

It's Here: The Diaper Express

United Air Lines has put into operation daily "Nurseryliner" flights each way between San Francisco and Los Angeles to meet the demand for exclusive mother-and-baby flights. United estimates that one out of 150 passengers is an infant and that the number will increase rapidly with the removal of air travel restrictions. The Nurseryliners are regular DC-3's, specially equipped to handle the care of infants. Two registered nurses are

The Nurseryliners are regular DC-3's, specially equipped to handle the care of infants. Two registered nurses are assigned to each plane. Company officials say that men will not be welcome aboard the planes unless they are traveling with youngsters.

on air travel and air express is estimated to have yielded an additional \$20,500,000. He added that the profit on the Post Office Department's air mail operations totaled \$50,000,000.

Some of CAA's proposed far-flung international activities, such as operating airway facilities in foreign countries and training nationals of these countries to take over, were explained by Deputy Administrator Charles I. Stanton and other witnesses. These witnesses brought out that CAA proposed to establish offices at the following foreign stations: Lima, Peru; Rio de Janeiro, Brazil; Balboa, Canal Zone; Stockholm, Sweden; Madrid, Spain; San Juan, P.R.; Paris, France; Miami, Fla.; New York, N. Y.; San Francisco, Calif.; New Orleans, La.; Brownsville, Tex.; Cairo, Egypt; Karachi, India; Manila, P. I.; Buenos Aires, Argentina; Natal, Brazil; Noumea, New Caledonia; Honolulu, Hawaii; Santiago, Chile and Tokyo, Japan.

#### Landis' Appointment as CAB Chairman Received Favorably by Transport Industry

James M. Landis, dean of law of Harvard University, will be the new chairman of the Civil Aeronautics Board, subject to Senate confirmation, succeeding L. Welch Progue, it was revealed by AMERICAN AVIATION DAILY on Mar. 29. Landis will not take office until about June 1.

A man of broad legal background and wide government experience, Dean Landis' appointment has received favorable ac-



James M. Landis

ceptance within the air transport industry. Although he is known personally to but very few airline men, his appointment by President Truman is well regarded as an omen that the President intends to keep politics out of the CAB.

Now 47 years old, Landis served as secretary to the late Mr. Justice Brandeis in the U. S. Supreme Court following his education at Princeton and Harvard. He joined the Harvard University law staff in 1925 and as dean of the law school since 1937 except for leaves of absence on government work.

He first came into public limelight in 1933 when he was named a member of the Federal Trade Commission. In 1934 he was one of the first members of the Securities and Exchange Commission and served as its chairman from 1935 to 1937. He has been a consultant to both the Labor and War Departments and from 1941 to 1943 he was director of the Office of Civilian Defense. In 1943 he was named Minister, and American Director of Economic Operations in the Middle East, with headquarters in Cairo.

Returning to Harvard last year, he began teaching aviation law and has developed a deep interest in air transportation over a period of the last five years.

### UNRRA's Cargo Experience Valuable to Air Carriers

#### Agency Ships Large Variety Of Commodities Overseas

COMMERCIAL AIR transportation is assuming a role of growing importance in the carriage of key personnel and critically needed food and medicines under the United Nations Relief and Rehabilitation Administration's plans for the rehabilitation of war torn European and

Spokesmen for UNRRA assert that this international agency, with the exception possibly of the U. S. military establishment, is now the largest user of international air transportation. And UNRRA's

experience in shipping a variety of commodities by air is furnishing this country's international air carriers with an experience that will help them materially in developing new types of cargo business in the postwar expansion of air transport. During the past four months, 239 key personnel of UNRRA have been carried

by air to destinations in foreign countries and Ferd Mayr, assistant chief of the agency's air travel section, estimates that enother 500 will be flown to UNRRA's posts abroad during the balance of the Mayr was formerly district commercial manager for Pan American Air ways in New York and served in ATC with the rank of major.

Due to the fact that commercial air car-

riers have not yet been able to establish riers have not yet been able to establish good service from the Pacific coast to the Orient and because the need for getting additional personnel into China is great, UNRRA was forced to contract for six charter flights to Shanghai with Pan American, which is using a Lockheed Constellation released by the Navy. These flights, the first of which was made March 24 and the second April 4, were forced to go the longer route, via Hickam Field and Guam because landing facilities were and Guam because landing facilities were not yet available over the northern route.

As ATC operations to the Orient are As ATC operations to the Orient are being cut back considerably, it may be necessary for UNRRA to contract with non-scheduled operators for additional air transport facilities. However when the service is available, UNRRA as a matter of policy plans to fly its personnel by certificated U. S. international carriers.

During March, approximately 15,000 pounds of commodities, including vaccines, concentrated foods, auto spare parts, high speed saws and other critical ma-terials were sent to Austria, Czechoelo-vakta, China, Greece and Yugoslavia. Vaccines are shipped in dry ice. They must reach destinations in 72 hours which is the maximum time allowed for the dissipation of the ice. Serious after ef-fects, including paralysis and even death, can result from use of vaccines which have not been kept at constant temperatures, it was stated.

#### Dr. Moss to Receive Potts Medal

The Howard N. Potts Gold Medal will be presented to Dr. Sanford A. Moss, General Electric Co. engineer, on Apr. 17 at the Frank-Electric Co. engineer, on Apr. 17 at the Frank-lin Institute, Philadelphia, "in consideration of the extreme value of his work in making a turbosupercharger a successful and reliable part of an internal combustion engine." In 1945, the Potts Medal was awarded to Edwin A. Link, inventor of the Link trainer.

Aviation officials of five southwestern states held a meeting recently. Fifteen were present. But the Federal Civil Aeronautics Administration sent ap-proximately 45 men, including a C-47 load full from Washington, thus out-numbering the state officials by 3 to 1. At least one of the state aviation officials present didn't mince words about what he thought.

#### 200 Foreign Facilities For Navigation to Continue Operating

Nearly 200 air navigation facilities in-stelled in 68 foreign countries by U. S. military forces will be kept in operation for the benefit of U. S. international air commerce under terms of an executive order issued March 29 by President Tru-

T. P. Wright, Civil Aeronautics Administrator, stated that this country was not in a position to take action on a problem that has been disturbing everyone concerned with the maintenance for civil aviation use of the U. S.-constructed air navigation facilities that played such a vital role in establishing this country's

world leadership in military aviation. Wright called attention to the fact that the War and Navy Departments have been operating at points outside of the U.S. approximately 600 radio ranges, airways communication stations and similar facilities essential to safe air naviga-tion. Recognizing that these facilities were necessary in proposed international air operations, Wright said the Air Coordinating Committee directed a subcommittee, headed by CAA Deputy Administrator Charles I. Stanton, to survey all such facilities and recommend a program to preserve those necessary to civil avia-Stanton's subcommittee found that 258 of the military installations are necessary to international air service, and 66 of these would be continued by military agencies in connection with occupation and similar duties. It recommended that the Department of Commerce take over the remaining 192.

#### **CAA Drops Special Services** In Aircraft Recordation

In an effort to catch up on thousands of uncompleted transactions in its air-craft recordation section the Civil Aeronautics Administration has requested that no special inquiries concerning aircraft registration and ownership certificates be

made by telephone or personal visits.
"Because of serious personnel shortages we are forced to cut out special services in order to keep up with the increasing volume of routine work," John T. Morgan, chief of the certification and recordation section, said in admitting that the backlog of registration applications is now more than 10,000.

#### Aviation Calendar

Apr. 12-15-Annual flight of Sportsman Pilots Association to Palm Beach. Fla., headquarters at Brazilian Court

Apr. 18-IAS New York Section meeting, 8 p. m., McGraw-Hill Auditorium. Apr. 22-24—Stephens College, Colum-Mo., national conference Women in Aviation.

Apr. 22-27—National Plastics Exposi-tion, Grand Central Palace, New York. Apr. 26-28—Goodwill "Flying Caval-cade" tour of Arizona and Mexico, auspices Phoenix Chamber of Com-

Apr. 28-30—National Association of State Aviation Officials, Statler Hotel, Washington, to confer with CAA and CAB committees.

Apr. 23-May 1—Women's National Aeronautical Association convention, Broadmoor Hotel, Colorado Springs. May 6-7—Eleventh national meeting,

National Aircraft Standards Committee, Lexington Hotel, New York. Engineering

May 6-8—First Joint Engineering Conference, Aircraft Industries As-sociation and CAA, Shoreham Hotel,

May 13-14-New York State Aviation Council's semi-annual meeting, West-chester Country Club, Rye, N. Y. May 20-22—American Association of

Airport Executives annual convention,

Congress Hotel, Chicago.

May 24—Kansas Farmer's Flying Club
convention and exhibit, Hutchinson,

May 30-June 2-Oklahoma Aviation Association air tour, western half of

1-2-National Air Carnival. June Birmingham.

June 1-2-Air Show at Los Angeles Airport, sponsored by Los Municipal Angeles Examiner.

June 2-7—SAE Summer (Semi Annaul) Meeting, French Lick, Ind. June 8-9—Dedication Eldon, Mo Model Airpark.

June 13-15—Annual New England lightplane tour, auspices New England Aviation Trades Association.

July 18-21—"World's Fair for Aviation," Omaha.

July 19-20-NAA National Conven-

Omaha, Neb. 1-2-National Flying Farmer's Association first annual convention, Oklahoma A. & M. College, Stillwater,

Aug. 22-24-SAE National West Coast Transportation & Maintenance Meeting, New Washington Hotel, Seattle.

ing, New Washington Age.

Aug. 30-Sept. 7.—International Air
Show, de Havilland Airport, Toronto,
auspices National Aeronautical Association of Canada, 409 Confederation

Life Bldg., Toronto.

Aug. 31-Sept. 2—National Air Races, Cleveland.

Oct. 3-5-SAE National Aeronautics (Fall) Meeting and Aircraft Engineering Display, Biltmore Hotel, Los

Oct. 14-17-National Aviation Clinic, Oklahoma City. Oct. 16-17—SAE National Transporta-

tion & Maintenance Meeting, Hotel Knickerbocker, Chicago.

Oct. 23-25—Second Annual Arisona Aviation Conference, Phoenix. Fuels & 7-8-SAE National Lubricants Meeting, Mayo Hotel, Tulsa,

#### INTERNATIONAL EVENTS

Apr. 24-PICAO route service conference on European navigation facilities, Paris.

May 21—PICAO Assembly Meets,

Montreal.

Montreal.
Oct. 29—Annual meeting International Air Transport Association, Cairo.

### ATC Prepares Specifications For Future Transport Craft

#### Manufacturers Will Learn What Army Wants to Fly

By ERIC BRAMLEY

FOR THE FIRST time since its formation, the AAF Air Transport Command is preparing to tell aircraft manufacturers, through Army channels, exactly what types of transport aircraft it needs for future operations.

Manufacturers will eventually learn, for example, that ATC wants to be flying, within the next five years, a transport aircraft capable of carrying 30,000 to 35,000 lbs. of cargo and passengers in a pressurized cabin over a distance of 2,500 miles non-stop at 300 miles per hour. Specifications may also be drawn up for a smaller plane.

Because of the pressing needs of war, ATC in the past took airplanes where it could get them. Some were requisitioned from the airlines, others were re-ceived from manufacturers who had them in production for the airlines. Even those manufactured under Army orders-C-47s, C-46s, C-54s and others—were converted commercial aircraft. There has never been an airplane specifically designed for ATC transport work.

That ATC eventually would get around to making known its needs, which differ from those of the airlines and from the other parts of the Air Forces, was ex-pected. Now that it is actually preparing its requirements, ATC will become of increasing importance to U.S. aircraft manufacturers.

Wants Heavy Payload

These requirements are not yet in final form but, speaking generally, ATC of-ficers want 15 to 17 tons payload for 2,500 miles non-stop. They favor a four-engined plane with tricycle gear which lends itself to rapid conversion from a passenger to a cargo plane or which can be used as a combination. Moveable bulk-heads will be required, as will seats that can be installed and removed quickly.

ATC believes interior arrangement should permit carriage of cargo in the forward part of the airplane (a front loading door may be desired), with passengers aft, and that the cockpit should be above the cargo. This cockpit arrangement is used by Fairchild Aircraft in its C-82 Packet.

Pressurization, ATC says, should keep the cabin at a minimum of 8,000 ft. It also is interested in getting an adequate cabin heating system to supplant the overhead heaters which never worked out satisfactorily in planes used during the war.

ATC would like to see every window made an emergency exit, to facilitate quick abandonment of the plane in emergencies.

In smaller equipment, a plane capable of carrying 12,000 lbs. 1,500 miles non-stop is needed. Other requirements would be similar to those listed for the

larger plane.

Not being overlooked by ATC is the possible use of JATO (jet-assisted takeoff). It will also keep an eye on jet and gas turbine development, and the pos-sibility of using flying wing type aircraft.

#### C. M. Keys Returns as **Organizer of Airline**

C. M. Keys, one-time big financial power in American aviation, has reap-peared on the airline scene as one of the organizers of Peruvian International Airways, a Peruvian company with capital equally divided among Peruvian, U. S., and Canadian interests.

The government of Peru issued a decree Mar. 18 approving the airline as the country's international chosen instrument and granting permission to the company to use any equipment and personnel it desires. It is understood that the onethird Peruvian interest will be held by

the government.

Initial plans call for an airline to operate between Lima, Peru, and Montreal, Canada with stops at Balboa, Miami and and New York. Douglas DC-4 equipment is contemplated.

Keys was prominent in U. S. aviation in the late 20s and early 30s and was head of, or a leading official of, numerous companies such as National Air Transcompanies such as National Air Transport (later TWA), Curtiss-Wright and others. He retired from the aviation scene in 1932 to become an investment broker and early in World War II organized the C. M. Keys Aircraft Service, Inc., 551 Fifth Ave., New York, With Keys in the new venture is Clarence W. Webster, one-time president of Curtiss-Wright Airports Corp., and now president of Aircraft Export Corp., 30 Rockefeller Plaza, New York.

#### 5c Air Mail Bill In

Rep. George O'Brien (D., Mich.) in-troduced a bill (H. R. 5993) providing a postage rate of 5c an ounce for air mail, setting up air parcel post rates, calling for appointment of an Assistant Secretary of State for Air, and authorizing the Post Office to lease facilities at airports. Although these recommendations were in Second Assistant Postmaster General Gael Sullivan's recent air mail report (American Aviation, Apr. 1) it is not believed that the PO will endorse the O'Brien bill. PO officials prefer to see the Sullivan recommendations introduced in separate

#### Inspection Charges

In line with its new policy of passing on charges for services to users, Civil Aeronautics Administration users, the Civil Aeronautics Administration is planning to institute charges for inspections of all kinds some time this year, it is learned. Inspection has been greatly decentralized within the past year or two with trained individuals designated to handle inspection with CAA spot checking and supervision. Just how the charges will be worked out is not yet clear.

#### **New ATA Committee** May Assume Duties of State Relations Body

Prospective reorganization of the state relations department of the Air Trans-port Association has been delayed by a decision made last fortnight to submit the plan for establishing a field committee on governmental affairs to the board of directors for approval.

While the members of the state rela-tions committee are understood to have given general approval to the plan whereby the new field committee would take over the work of the state committee, many revisions to the plan were suggested.

The airline representatives gave their endorsement to a referendum being taken by the U. S. Junior Chamber of Com-merce, dealing largely with the powers and functions of the CAB and CAA and attitudes on state regulation. The list of questions follows:

1. Is present regulation by CAA of scheduled airlines sufficiently adequate and effective to make State regulation unnecessary?

2. Should fixed-base operators providing interstate services to the public be required to obtain a single Federal permit, available with a minimum of formalities, and without territial restrictions except as necessary for affects. torial restrictions, except as necessary for safe use of the air space?

3. Should contract air carriers be subjected to regulation, not to prevent opportunity for development, but to prevent desiructive com-petition and insure safe and responsible oper-

4. Should the CAB and the CAA be taken out of the Commerce Department and given an independent status, which they had prior to the reorganization of 1940?

5. Should investigation of air accidents be made by an independent agency in close association with an independent CAA?

6. Should the States, through appropriate agencies, undertake a supporting program of airport development and promotion work?



Air Delivery to Egypt—Three Model 185 Beechcrafts, flown recently from Beech Alrcraft Corp., Wichita, Kan., arrived in Cairo, Egypt, for delivery to the Misr Airworks, S. A. E. after covering the 9,958-mile trip in an elapsed time of 47 hours, 40 minutes, at a average speed of 188 mph. Dean Cunningham (left), Beech pilot, and T. Y. McVay, Beech service engineer, are shown prior to departure from Wichita. McVay will remain in Cairo for several months instruct Misr Airworks personnel in servicing and operating the ships. Misr operates Egypt's largest airline.

### Government May Prosecute Airline in Acquisition Deal

#### Justice Dept. Considers National-Caribbean Case

DEPARTMENT of Justice attorneys are considering the possible prosecution of National Airlines under the criminal penalties section of the Civil Aeronautics Act for violating the economic provisions of the Act by "knowingly and wilfully" or the Act by "knowingly and wilfully" acquiring control of Caribbean-Atlantic Airlines without CAB approval. If Justice decides to prosecute the case, which was referred to it by the Civil Aeronautics Board, it will mark the first time the criminal penalties section has been invoked for a violation of the economic provisions of the Act.

In an opinion handed down on Mer. 4

In an opinion handed down on Mar. 4, the Board disapproved National's acquisition of the Puerto Rican airline and de-clared that National had actually acquired control of Caribbean-Atlantic "knowingly and wilfully" in violation of the Act. CAB's findings in the case were later transmitted to Justice as required by Federal procedure, and preliminary work looking toward possible prosecution is now underway in the Department's criminal division headed by Theron Caudle.

The Justice Departmet will decide whether National's violation warrants prosecution, and if it determines to press the case, suit in Federal courts in Florida

Some Argument Seen
The basis for the prosecution is provided in the Civil Aeronautics Act, Section 902 (a) headed "Criminal Penalties—General," which states that "Any person who have been seen as a second with the states. who knowingly and wilfully violates any provision of this Act (except titles V, VI, and VII), or any order, rule, or regulation issued under such provision, or any term, condition or limitation of any cer-tificate or permit issued under title IV, for which no penalty is otherwise herein provided, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be subject for the first offense to a fine of not more than \$500, and for any subsequent offense to a fine of not more than \$2,000. If such violation is a continuing one, each day of such violation

shall constitute a separate offense."

Some argument over the interpretation of the "continuing violation" provisions of this section may arise. The Board found that National had actually acquired control of Caribbean-Atlantic on Apr. 10, 1945, but the opinion disapproving the 1945, but the opinion disapproving the acquisition and pronouncing it a violation of the Act was not issued until almost a year later—Mar. 4, 1946. Under the broadest interpretation of the penalty section, it appears possible that every day of this period could be construed as a separate offense by National, and that maximum forces construents. a maximum fine of approximately \$650,-000 conceivably could be imposed. Ob-servers consider it quite unlikely, however, that the Department of Justice will ask the maximum, or that, if the case is brought to trial and National found guilty, a court would impose the maximum penalty. They point out that the time necessarily consumed by the Board in time necessarily consumed by the Board in making its administrative finding of a "knowing and wilful" violation and the fact that National will be considered a

"first offender" both provide ample reason for asking less than the full penalty.

With regard to the "knowing and wil-il" violation of the Act, the Board stated in its opinion on Mar. 4 that the uncontroverted testimony of Dennis Powelson, Caribbean-Atlantic's controlling stockholder, disclosed that G. T. Baker, National Airlines' president, had ex-pressed a willingness to take the risk of concluding the acquisition agreement without prior CAB approval "even though such action might be deemed a violation of the Act, and that he signed his agreement 'regardless of what that involved'."

"Whatever intentions these responsible representatives of National and Carribean might have had," the Board stated, "it is clear that they were aware that the agreement for the acquisition of conrol and performance under it might be violative of the Civil Aeronautics Act and that they were willing to proceed in the face of that awareness in order to conclude a transaction in which they could not otherwise concur. Their action must in the circumstances be deemed to have been committed 'knowingly and wilfully,' as those words are used in the Act."

#### **Operators Work for NATA Reorganization** At Chicago Meeting

Efforts to reorganize the National Aviation Trades Association into a potent force representing the interests of some 3,000 fixed-base operators throughout the country were centered in Chicago, when threescore operators from seven states in Region 3 met on Apr. 1 to pool their problems, hopes, and enthusiasms, and to work toward unification needed for national

Featuring the one-day conference were:

• An appeal from NATA President Roscoe
Turner for rebuilding a strong organization to
protect fixed-base operators' interests within
the various states and in Washington.

A resolution calling for elimination of the present NATA regional system and establish-ment of state chapters as units of the na-

nal body.

Futended discussion of Extended aviation training under the GI Bill, culminated by a request that the NATA board of governors establish recomnended curricula for GI aviation training and provide guidance for determining fair and equitable rates for such instruction.

Disapproval of a proposed change in regulations by the Civil Aeronautics Administration

that would allow one-half of the required dual time for a private pilot's certificate to be given by an unrated instructor.

Condemnation of the CAA's plan to operate its own repair bases.
Calling on members from Minnesote.

ate its own repair bases.

Calling on members from Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, and Kentucky to lead the NATA renaissance, Turner reminded them that Region 3 has always been the largest in the organization and "the only one not town with dissergion and patty is allowing." torn with dissension and petty jealousies." Region 3, he said, should take the initiative by scheduling a convention for some-time in September which could be developed into a national affair.

In an atmosphere of frankness, the

#### Weather Flight Returns

A specially-equipped B-17 Flying Fortress and crew of 10 AAF and TWA technicians have returned to the U. S. after 32,397 miles of round-the-world flying with new knowledge for all-weather operations on global air routes. The operation was carried out to test by The operation was carried out to test by electronics and high-speed camera recording devices the most severe electrical and static conditions which interfere with radio and other flight apparatus. Army experts aboard the flight were Capt. E. L. Cleveland, in charge, and Philip Couch. J. W. Tucker, H. E. Schecter and S. J. Brumicardi, all radio experts. Members of the TWA crew were Capt. Robert Tuck, pilot; G. A. Sharp, first officer; Guy Arnold, navigator; Barney Dowd, flight engineer; and W. A. Foley, assistant flight engineer.

NATA president decried recent resignations of national officers, declared that two or three members had wanted to dominate the organization, and pledged his continuing efforts to help keep NATA working for the "little fellows."

He warned of impending economic controls, federal and state, that charter and

non-scheduled operators must prepare to combat, adding that "we'll have a lot of vision and no voice if we don't have an organization."

The operators were unanimous in favoring creation of a new structure based on James R. Harrington, Harrington Air Service, Mansfield, O., tabbing the present regional set-up as perhaps the "greatest weakness" of NATA. Most problems of local operators, it was pointed out, are statewide rather than regional, and state groups would be more effective in fighting state battles and netting tangible benefits to its members. The regional system, which was developed to coincide with the CAA's back in the days when many of the operators were engaged in the Civilian Pilot Training Program, was described as unwieldy and ineffective for facing state and national issues ahead.

Intense interest of the group in aviation instruction under the GI Bill of Rights was matched only by the general confusion attached to the program. An exchange of experiences revealed a wide range of rates approved by the Veterans Administration for comparable aviation training. Some rates were reported as low as \$5 and as high as \$12 an hour for private pilot's instruction, with commercial pilot instruction charges ranging from

\$24 to \$40 an hour.

After considering a direct appeal to the Veterans Administration in Washington for rate standardization and also action on the state level, the operators agreed that the NATA board of governors should recommend a rate structure for the various training activities to serve as guide for the local operators in establishing their prices.

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Relaxing of regulations to authorize dual instruction by unrated instructors, recently recommended by CAA private flying specialists, was opposed by the group as a step backwards from safety

in flight training.

NATA objection to the CAA scheme to operate its own aircraft repair service was reinforced by Rep. Jennings Randolph, (D., W. Va.), who, as a principal speaker at the concluding session, promised a vigorous fight in Congress against the plant

### House Passes Airport Bill; Early Senate Vote Indicated

#### Closer Contest Predicted For Measure in Upper House

O VER WEAK Republican opposition, the House of Representatives last fortnight adopted the conference report on the Federal Airport bill. The standing vote was 140 to 81. It was expected that by the time this issue goes to press, the Senate too, although by a much closer vote, would agree to the measure which authorizes a \$500,000,000 Federal expenditure for airport construction over a

seven-year period.

When the conference report was brought up in the House, only the channeling issue was in controversy. Rep. Evan Howell (R., Ill.) advocated that the report be sent back to conference in an attempt to get some compromise on the channeling issue. Under the terms of the report as it passed the House, local sponsors may file project applications direct with the CAA Administrator and the states may participate in the program by providing a part of the matching funds and joining with cities as cosponsors. If States have laws or pass laws prohibiting the Federal-Local relationship, they can thereby force the Federal government to allocate the funds to the States.

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Rep. Clarence F. Lea (D., Calif.) led off the debate by explaining the conference report, and urging its edoption. Howell followed him with a recitation of the numerous instances in which the Federal-State pattern has been followed in matching of funds, mentioning specifically the Federal-State highway program. He said the conference report, if adopted, would further concentrate power in Washington and that the confusion of WPA days would be duplicated.

Rep. Carl Hinshaw of California said the bill as reported would give a great advantage to smaller communities desiring to build the smaller airports for private flyers. He stated further it would provide definite incentives for the States to raise airport funds so they could join with local sponsors in an airport con-

Rep. Lyle Boren (D., Okla.) asserted that the conference bill protected cities in states which do not have aviation agencies by making them eligible under the program. Rep. John McCormick (D., Mass.) majority leader, characterized the report as the best that could be obtained in the circumstances, while Rep. Jennings Randolph (D., W. Va.) said the bill made possible a constructive Federal works program which would benefit thousands of ex-servicemen who hoped to make aviation a career.

#### Friedlander to Leave Aeronca Post

Carl Friedlander has confirmed reports that he is resigning soon as vice president of Aeronca Aircraft Corp. "I have determined to leave the active management of Aeronca Aircraft Corp. and embark on another phase of aviation activity," he informed AMERICAN AVIATION. "I am, however, continuing on Aeronca's board of directors."

#### Fare-Conscious Airlines Ignore Cargo, Hinshaw Says

Airline management is so passenger conscious that it is overlooking a cargo business with far greater business potentialities in the opinion of Rep. Carl Hinshaw (R., Calif.), chairman of the aviation subcommittee of the House Interstate and Foreign Commerce Committee.

Hinshaw, a transportation engineer in civil life, stated that on the basis of some studies he has made, he is confident that the airline cargo business today would support 2,000 ten-ton cargo capacity aircraft. He believes business in this volume could be carried at 10c or less per ton mile.

"If airline management does not realize quickly the potentialities of the cargo business and stop thinking solely in terms of passengers, it is my observation that they will not be able to hold in their organizations some of the best cargo men in the business. These cargo men are becoming discouraged with passengerminded management. It is my understanding that cargo planes are being withdrawn from cargo operations and being used to meet the more popular and vocal passenger demands," Hinshaw stated.

Hinshaw called attention to the number of independent companies that are being formed to carry cargo on a charter basis in support of his belief that this cargo business is available.

#### 13 More Connies for TWA

TWA is concluding negotiations with Lockheed Aircraft for 13 more Constellations. Three will be used in international service and the remainder on transcontinental schedules. Deliveries are expected to begin the latter part of July. Total Constellation equipment will reach 49 by February of next year.

#### ATA Committee Preparing Uniform Accounting System

A six-member subcommittee of the Air Transport Association's accounts and records committee has been appointed to establish a uniform accounting system for domestic and international air carriers.

W. L. Walker, assistant comptroller, TWA, is chairman of the subcommittee. Other members are: L. E. Glasgow, manager of general accounting, American Airlines; Oscar Crane, assistant treasurer, Braniff Airways; Walter Short, budget director, Pennsylvania-Central Airlines; R. P. Munson, assistant to the comptroller, Pan American Airways; and A. D. Pipegras, chief accountant, Northwest

It is expected that the new accounting manual will be ready for use by Jan. 1, 1947.

#### Kansas Puts New Tax on Gas

A new one-cent-a-gallon tax on all gasoline sold in Kansas went into effect recently. Aircraft operators, railroads and every user of industrial as well as agricultural gasoline pays the tax. Kansas also has a three-cent-a-gallon tax which carries exemptions for industrial and agricultural users. Although a \$20,000,000 Federal-state highway program is planned for the next three years, there has been no mention of using some of the aircraft fuel tax money for airports.

#### Airlines Now Require 38 More Employes, 3 More Pilots Per Plane Than Before War

The domestic airlines now require 38 more employes and three more pilots per plane than they did just before the war, according to a special study of industry employes, pilots, and aircraft made by AMERICAN AVIATION. Commercial airlines, as a group, now average more than 87 employes and nine pilots per plane, compared with 49 employes and only six pilots four and a half years ago.

As shown by the survey, while the number of transports was increasing 67% from 355 in September, 1941, to 596 last February, total employes spurted 194% from 17,650 to 51,998, and total pilots (including co-pilots) jumped 167% from 2,146 to 5,702.

Most constant factor is the proportion of pilots to total personnel which has changed only from 12% in 1941 to 10.9%

	Total Employes		Pilots		Aircraft	
	Feb. 1946	Sept. 1941	Feb. 1946	Sept. 1941	Feb. 1946	Sept 1941
American Airlines	11,169	3,950	1,295	493	119	85
Braniff	2,000	785	200	96	23	16
Chicago & Southern	1,413	425	160	39	17	6
Continental	720	112	77	24	13	6
Delta	2,015	380	185	45	18 .	9
Eastern	5,670	2,100	581	275	72	40
Inland	294	126	37	24	10	
Mid-Continent	800	316	53	37	9	9
National	1,225	175	119	20	14	6
Northeast	876	265	52	37		8
Northwest	3,410	855	390	103	39	16
PCA	2,424	1.095	229	122	38	23
TWA	10.478	3.116	1,300	- 330	100	42
United	8,177	3,600	869	450	90	72
Western Air	1.327	350	155	51	26	12
Totals	51.998	17.650	5.702	2.146	596	355

Figures for All American Aviation and Colonial Airlines not available.

### U. S. and France Extend Fifth Freedom Privileges

#### Agreement Follows Closely Recent U. S.-British Pact

In AN AGREEMENT patterned closely after that signed several weeks ago by the U. S. and Britain, the U. S. and France late last month extended to each other fifth freedom privileges and set out the routes on which their respective airlines will operate.

Under the terms of the agreement, U.S. carriers receive rights on eight routes, one of which extends beyond Marseilles to Turkey. The French can operate on five routes, one passing through the U.S.

to Mexico.

In addition to granting the five free-doms, the agreement allows unlimited frequencies and provides that airline fares will be subject to government approval. The rate section follows closely the British agreement, providing for government con-sultation, referral of disputes to the Pro-visional International Civil Aviation Organization, etc.
U. S. and French airlines may change

U. S. and Freench arrines may change from larger to smaller planes at points along the routes (this is termed "trans-shipment"; it was called "change of gauge" in the U. S.-British agreement) provided such change does not alter the long-range characteristics of the opera-

tion.

• U. S. routes under the agreement are:

1. U. S. via North Atlantic to Paris and beyond via Switzerland, Italy, Greece, Egypt, Near East, India, Burma and Siam to Hanol, thence to China and beyond.

2. U. S. via North Atlantic and Spain to Marseilles and beyond via Milan, Budapest, and points south of the parallel of Budapest to Turkey and thence via intermediate points to a connection with route 8 and beyond on said route. said route.

3. U. S. via North Atlantic and Spain to Algiers, Tunis and beyond to Egypt and be-

yond via route 1.

4. U. S. via intermediate points to Dakar,
Pointe Noire, Brazzaville and beyond to Union of South Africa.

5. U. S. via intermediate points to Guade-loupe, Martinique and beyond to French Guiana and South America.

6. U. S. via Pacific Ocean to New Caledonia and beyond on one or more routes to Australasia (including Australia and New Zealand).

7. U. S. via Pacific and Manila to Saigon and beyond to Singapore and Batavia.
8. U. S. via Pacific, Manila, Hong Kong, Macao and China to Hanoi and beyond via Siam, Burma to India and beyond.

• French routes are:

1. France via intermediate points over North Atlantic to Boston, New York and Washington and also the site of the United Nations Or-

ganization. France via North Atlantic and Montreal

France via North Atlantic to New York and beyond to Mexico City.

4. Martinique via Guadeloupe and via inter-

mediate points to Puerto Rico and beyond via Dominican Republic to Haiti.

Dominican Republic to Haiti.
5. Indochina via points in China and Hong Kong to Manila (provided this route is subject to approval of Philippine government).
U. S. airlines get transit and non-traffic rights on all airports constructed on French territory and financed in whole or in part by the U. S. and which will be opened to international civil traffic. They will also have at these fields such commercial rights as are granted by this commercial rights as are granted by this agreement.

#### War Assets Allocates 72 Transport Craft; C-54s to 3 Airlines

The War Assets Administration allocated 72 more two and four engine surplus transport eigraft during the past formight. Six Douglas C-54A type craft each went to Pennsylvania-Central Airlines and TACA, of Venezuela. Northwest Airlines was allocated one C-54B,

In the recent allocations—the 28th and 29th under surplus property procedures-57 of the planes went to 41 domestic applicants and 15 to two foreign applicants. This brings the grand total of surplus This brings the grand total of surplus transports allocated to 712, of which 536 went to domestic applicants and 176 to foreign applicants. These are revised foreign applicants. These are revised figures which take into account rejections of transports.

The complete list of allocations follow:

Douglas C-54A—PCA 6; TACA, Venezuela 6; Rusi Mistri, Bombay, Air Associates, Bom-bay, India, 9; Transcontinental Air Express Corp., Stockton, Calif., 2: Veterans Air Express, Newark, N. J., 1; Antilles Air Express, Puerto Rico, 1; Intercontinental Air Transport Co. of Miami, 2.

Douglas C-54B-Northwest Southern Commercial Air Transport, Shreve-port, La., 1; Air Transport Corp., New York

Douglas C-53—Pan American-Grace Airways, 1; TWA 1; Hawaiian Airlines, Ltd., 1.

Beech UC-45-Civil Aeronautics Administration, Washington, D. C., 1.

Consolidated PBY-5A-Murray J. Ebaum, veteran, Vallejo, Calif., 1.

Douglas C-47A—(used passenger version); Joseph Shainman, Miami, Fla., veteran, 1.

Joseph Shainman, Miami, Fia., veteran, 1.

Bouglas C-47B—One plane each to the following, all veterans: Monroe Airways, Inc., Monroe, Mich., Cdr. W. W. Kraft, Miami, Fia.; Charles R. Mayers, Long Beach, Calif.; Capt. Lawrence D. Pudney, Niagara, Calif.; Winged Cargo Corp., Philadelphia, Pa.; Maj. Robert E. Sullivan, Kansas City, Mo.; National Aero Co. (R. J. Wilson), Hayward, Calif.; and Calumet Air Service, Gary, Ind.

Beech (AT-11)-(Veterans): Carl M. Berry, Salem, Mash., 1; William H. Hiltunen, Salem, Mass., 1; William N. Hite, Salt Lake City, Utah, 1; Aircraft Components Corp., Wm. J. Cunningham, vice president, Alexandria, Va., 4; Harry E. Miller, Jr., Pictorial Services Corp., Tampa, Fla., 1; L. M. Bentsen, Jr., Cox, Taylor & Bentsen, McAllen, Tex. C. W. Fields, Ft. Worth, Tex., 2; and M. H. W. Ritchie, Adair Ranch Office, Paloduro, Tex., 1.

Beech (AT-11)—(Non-priority): Joseph P. Mullen, Jr., Havertown, Pa., 2: Brunswick-Mullen, Jr., Havertown, Pa., 2; Brunswick-Balke-Collendar Co., Chicago, Ill., 1; Jack Ammann, Photogrammetric Engineers, San Antonio, Tex., 2; Fay J. Hansen, Seattle, Wash., 2; Alex Papana, Aircraft Testing Co., Beverly Hills, Calif., 1; Donald D. Webster, Aero Insurance Underwriters, Washington, D. C., 1; George J. Edgcumbe, Tufts-Edgcumbe, Inc., Des Plaines, Ill., 1; Frank G. Ottobini, Long Reach, Calif. 3; and James Jackson. Ill., 1; Jack Long Beach, Calif., 3; and James Jackson, Butane Equipment Co., Inc., Dallas, Tex.

Beech (AT-7)—(Rejected by CAA): Col. Charles H. Hough, Dalsy Mfg. Co., Plymouth Mich., and if rejected by him, to David H. Johnson, Palm Beach, Fla. Both are vet-

#### Hendersons Out

Cliff Henderson, the West Coast entrepreneur who managed the National Air Races at Cleveland for many years, with his brother Phil, will definitely not be associated with the Nationals in the future, it is learned. The Henderson brothers had been successful in operating the annual show profitably for both themselves and the Cleveland sponsors, but the Army Air Forces has put but the Army Air Forces has put thumbs down on participating this year if the Hendersons run the show. Seems that Cliff got cross-wise with the AAF during the war. Meantime the National is definitely set for this year (Aug. 31-Sept. 2) but details are yet to be worked

#### **UK Lend-Lease Terms Reveal Transport Items**

The United Kingdom, under final terms agreed upon for settlement of Lend-Lease aircraft and spares of a non-combat nature, purchased 600 C-47 transport aircraft for \$15,000 each; 25 C-45s for \$25,000 each and 18 Liberators (C-87s) for \$25,000 each for military transport

An additional 72 C-47 planes were sold outright for use of British Overseas Airways Corp. for \$20,000 each and 671 C-47 ways corp. for \$20,000 each and 671 C-47 aircraft were leased at \$333.33 per aircraft month for a total of 7,213 aircraft months with the British accorded the right to purchase them at the end of the lease period for \$20,000 each, less lease charges previously paid on them.

#### **EAL Turned Down on Claim** For Engine Depreciation

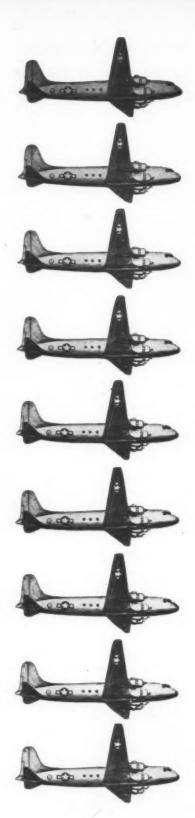
Eastern Air Lines has been turned down on its claim for depreciation and obsolescence of engines of governmentleased company aircraft during the period the transports were being reconverted for civilian use. The planes were leased during the war for use by the War De-partment and turned back to the company in May, 1944.

Under terms of the lease, the government continued to pay rental fees dur-ing the 21-day period that the aircraft were being reconverted, even though the rental contract has been terminated. Eastern contended that the continued payment of rental fees implied an obligation on the part of the government to continue to pay depreciation and obsolescence charges on the engines during the reconversion period.

#### Survey Shows Liberalization Of Life Insurance Policies

Extensive liberalization in life insurance policies is indicated in an analysis of current practices of 104 life insurance companies issued by the Institute of Life Insurance, New York City. Persons contemplating passenger travel in non-scheduled commercial planes can secure policies at standard rates, without regard to amount of travel, with about 6% of the companies.

The report also shows that persons contemplating travel in company-owned business planes within normal limits, usually about 20,000 miles, can secure poli-cies at standard rates with 65% of the insurance companies. Pilots and crews of privately-owned planes also have been granted extensive liberalizations.



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# 5,000 Flights

#### between HONOLULU and SAN FRANCISCO!

United Air Lines has completed its 5000th flight between San Francisco and Honolulu—flying for the Air Transport Command.

United is proud of its flight and ground personnel who have made such a record possible. Altogether United crews have completed 32,500,000 airplane miles in trans-Pacific wartime and post-war operations.

More than 120,000 military passengers have been flown...over 250,000 tons of men, military cargo and mail have been transported—all through Honolulu—to far-flung bases of the vast Pacific. At times as much as 42,500 miles of flying daily was accounted for between the Mainland and Pacific outposts.

Yet United crews, still flying to Honolulu (and on to Japan) for the Air Transport Command, complete their runs with the same efficiency, regularity and dispatch as elsewhere on the Main Line Airway.

#### UNITED AIR LINES

PASSENGERS . MAIL . EVERESS . SECTION



United Air Lines holds the Award of Honor, presented by the National Safety Council, for having flown more than a billion passenger miles without a fatal accident.



#### ICC to Clarify Case of 'Line-Haul'Operations

An Interstate Commerce Commission examiner has under consideration a case which may cast additional light on the legal definition and status of ground transportation by truck or otherwise of goods which have moved on an airway bill or Air Express bill of lading over a part of

The proceeding springs from an application of Sky Freight Delivery Service, Inc., a contractor for certain ground transportation portions of American Airlines airfreight service, for certification as a common carrier in the New York commercial zone.

The ICC examiner has recommended that Sky Freight's application be dismissed on grounds that the carrier's operations were incidental to air transportation services, and were not therefore the conventional "line-haul" operations which

CC certifica es.

A number of intervening surface carriers have objected to the finding that the service was incidental and not line-haul, pointing out that hauls of almost 50 miles crossing state lines enroute would be possible if Sky Freight were exempted from the certificate provisions of the Interstate Commerce Act.

#### **British Would Set Up** Three Air Carriers

The British Labor Cabinet has intro-duced legislation into the House of Com-mons to implement the Winster White mons to implement the Winster Wifte Paper creating a government monopoly of all scheduled air transport through three public corporations, including the existing British Overseas Airways Corp., British South American Airways and British European Airways, now operating as subdivisions of BOAC, are to be set up as separate airlines. Absolute control of routes, frequencies, schedules and poli-cies is vested in the Minister of Civil

Subsidies totaling \$336,000,000 are authorized to cover all probable losses for the next 10 years. Any earnings above operating expenses go into the public Treasury. A five-fold increase in BOAC capitalization is authorized, permitting stock or bond issues up to a total of \$320,000,000. Capitalization for BEA is set at \$80,000,000 and for BSAA at \$40,000,000. Also authorized is the expenditure of \$80,000,000 to nationalize all commercial airports in Great Britain, whether now owned privately or by municipalities. Private operators are limited to charter

and taxi services, and face up to \$20,000 fine and/or two years in jail for infringe-ment on "regularly scheduled services. Debate will begin after Parliament's Easter recess, with the most bitter opposition expected for the provision that there shall be compensation for physical assets only.

NY Authority Installed Mayor O'Dwyer of New York City has Mayor O'Dwyer of New York City has named and sworn into office Harry F. Guggenheim, Lieut. Gen. James H. Doolittle and Laurance S. Rockefeller as the three-man unsalaried New York City Airport Authority recently created by the New York legislature to operate Idlewild and La Guardia airports.



J. C. Holmes

#### J. C. Holmes Leaves TWA to Become TACA President and Director

Julius C. Holmes, Washington, D. C., a general on Gen. Dwight D. Eisenhower's staff during the war and later Assistant Secretary of State, has resigned as vice president of Transcontinental and Western

president of Transcontinental and Western Air, Inc., to become president and director of TACA Airways (Transportes Aereos Centroamericanos).

Gen. Holmes takes over his new position Apr. 15. The presidency of TACA has been open since the resignation of Lowell Yerex in Dec., 1945.

Gen. Holmes is experienced in the Latin American diplomatic and business field, having served as secretary of the American delegation to the Pan American commercial conference in Buenos Aires in 1935 and later as president of General Mills' South America subsidiary in Rio de Janeiro,

Gen. Holmes, is a native of Pleasanton, Kan., served in World War I, and joined the U. S. Foreign Service in 1925. He served as vice-counsul at Marsailles, France transfering to Spayne in 1926. France, transferring to Smyrna in 1926 and to Tiranaj, Albania in 1929. He became assistant chief of the division of protocol and conferences of the State Department in 1934.

#### Mexico Court Upholds **Aerovias Braniff Decision**

The Supreme Court of Mexico in a three-to-two decision upheld the right of Aerovias Braniff, S. A., to carry passenyers and freight on the route Mexico City-Veracruz-Merida. Compania Mexicana de Aviacion, a Pan American Airways affiliate, sought to restrain Aerovias Braniff on the grounds of prior grant.

The court's majority decision held that the additional service was to the best in-terests of the nation. The decision is expected to carry weight in future disputes regarding the propriety of competitive airline service on the same routes in Mexico.

#### WAA to Discontinue **Leasing of Transports**

Leasing of surplus transport aircarft will be discontinued effective July 1, 1946, War Assets Administration announced last fortnight. The lease arrangement, for a period of five years, was made originally to expedite disposal of surplus transports and WAA said the arrangement

had served its primary purpose.

WAA also announced that 2378 surplus new aircraft engines, ranging from 65 to 1500 hp. were up for sale. All are Navy surplus and are stored at several Naval installations. Price and size range is from 25 Continental 0-170-3 at \$344 each to 75 Pratt & Whitney R-2600-22 at \$3410 each.

Bell Aircraft Corp., has purchased from WAA the plant at Burlington, Vt., which Bell operated to manufacture airplane parts and gun mounts. Bell used the plant under lease. Sale price was \$600,000 in cash. Bell plans to use it for the production of gasoline engines, transmissions for agriculture machinery and for other auto-

matic machinery.

A general adjustment in prices of in-dividual surplus twin-engine Cessnas was announced by WAA covering Army models AT-17 and UC-78 and Navy model JRC-1, all three models being essentially

the same aircraft.

U. S., Belgium Sign Agreement

The U.S. and Belgium on Apr. 5 concluded a bilateral air transport agreement similar to the one recently signed by the U. S. and France, granting fifth freedom rights, providing for setting of rates, etc. U. S. air services receive commercial entry at Brussels on the route from the U. S. via the United Kingdom and Belgium to India, and also commercial entry at Leo-poldville, Belgium Congo on a U. S.-South Africa route. Belgium air services are accorded the right to operate on a route from Belgium to New York.

Discusses Air Power and Peace
An article entitled "Air Power and the
Coming Peace Treaties" by John C.
Cooper, former vice president of Pan
American Airways, is one of the features of the current Foreign Affairs quarterly review, published by the Council on Foreign Relations, 58 E. 68th St., New

#### Capt. Tribus Wins Award For Work on De-Icing Problem

Capt. Myron Tribus, AAF, received the SAE Wright



Brothers Medal of 1945 on Apr. 5 for his contribution to the solution of the aircraft deicing problem in form of technical paper
"Report on the
Development and Application Heated Wings." The paper was prepared while Tribus was es-

Capt. Tribus signed to the equipment laboratory of ATSC, Wright Field. The medal was awarded at the close of the SAE National Aeronautics meeting in New York.



SKY CHEF, INC., of Boston, uses a White to deliver the tasty meals served aboard the American Airlines Flagship.

### Ground Service for the Sky Chef

THE EXPERIENCED TRAVELER has learned to expect delicious meals . . . attractively served . . . as the great airliners ply the skies. In this service, as in so many other ways, motor trucks supply the ground link. Since the early days of aviation, White Trucks have been providing efficient and

dependable performance to meet the diversified needs of the industry. In airport construction and maintenance—in production—in cargo handling—and in servicing—White leads the way.

If you have ground transportation problems—you can get authoritative information from White. Your inquiry will receive the attention of men who are interested in aviation's progress and who know "transportation from the ground up."



THE WHITE MOTOR COMPANY . Cleveland

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

### National Affairs and Congress

#### U. S. and Greece Sign Agreement

The U. S. and Greece last fortnight signed a five freedoms bilateral air transport agreement giving a U. S. carrier entry to Athens. Greece receives the right to operate to the U. S. on a route to be determined at a later date.

Discussions With India

The State Department has announced that the U. S. soon will begin discussions with representatives of the Government of India on the question of an over-all settlement of lend-lease reciprocal aid and surplus property matters, including aircraft disposal.

#### Bermuda Agreement a Treaty?

Chairman Josiah W. Bailey (D., N. C.) of the Senate Commerce Committee stated recently that he regards the Bermuda Civil Aviation agreement as a treaty and that he may act to have it referred to the Foreign Relations Committee of the Senate. He stated that he nevertheless objects to a bill by Sen. Pat McCarran (D., Nev.) which automatically would classify all air agreements negotiated by the State Department as treaties, subject to two-thirds Senate ratification. McCarran's bill, S. 1814, would be unconstitutional, Bailey said. He added that he doubted that the Senate would pass it and thought in any event that President Truman would veto it.

#### Navy Asks Research Expansion

The House Naval Affairs committee last fortnight took speedy steps to get action on a bill providing for the establishment of an Office of Naval Research in the Navy Department. The bill was introduced by Rep. Carl Vinson (D., Ga.) chairman of the committee, on Mar. 27, was referred to a subcommittee, prefunctory hearings were held (two Navy witnesses appeared) and on Mar. 29 the bill was reported to the House. Some observers felt the Navy was trying to get special legislation through Congress ahead of decisions on unification proposals which may affect its research setup.

#### ATC Hits Half a Billion

Air Transport Command officials estimate that ATC planes flying overseas operations covered nearly half a billion miles during 1945, carried an estimated 4,386,000 passengers, and 1,602,750 tons of cargo.



12,000 HP for Takeoff— Here is the first flight picture of the new Boeing XB-44 Superfortress, prototype of the 8-50. The new bomber differs from the 8-29 principally in its new engine nacelles, interchangeable units housing 2c-cylinder, four-row Pratt & Whitney Wasp Majors. Each engine delivers 3000 hp at takeoff. The 8-29's power is 2200 hp per engine.

#### ATC's Jurisdiction Broadens

Such allied AAF services as the Weather Service, Airways Communications System, Flying Safety Service, Aeronautical Chart Service and the Air Rescue and Flight Service are being placed under jurisdiction of the Air Transport Command. The military air freight and passenger service of ATC will be known henceforth as Air Transport Service.

#### Training Command Moves

Transfer of headquarters, AAF Training Command, from its wartime location in the Texas and Pacific Bldg., Fort Worth, Tex., to Barksdale Field, La., has been completed. Lt. Gen. John K. Cannon, recently Commander of U. S. Air Forces in Europe, has been named Commanding General of the Training Command.

#### Army Will Fire V-2 May 8

Army Ordnance Department will fire its first German V-2 rocket May 8 at the ordnance proving ground, White Sands, N M. The rockets are expected to reach a height of 100 miles before hitting the desert sands about 80 miles north of the firing platform.

#### Joint Operation Uses Loran

The AAF revealed that a joint American Air Forces and Canadian "Muskox" operation to the Arctic is using the new secret Loran radar system to navigate supply planes across the frozen northern wastes.

#### NACA Defines Liaison

National Advisory Committee for Aeronautics has promulgated a policy which will define functions of various contributing agencies. NACA, for example, will handle fundamental research, the aircraft industry will handle application of research results in the design and development of improved aircraft and equipment, and the Army and Navy will be charged with evaluation of military aircraft and equipment developed by industry.

#### Industry Assistance Asked

Industry assistance is being sought by the War Department and the Department of Commerce to determine the value of German industrial data, which is now available to American industry without cost. Recruiting of a large technical staff is underway to select and microfilm the German data.

#### 3rd Air Force Adds Packets

Six new Fairchild C-82 Packet cargo planes have been added to the Third Air Force (Troop Carrier).

#### Urge Unification

Three highly placed Army officers, two of them air force generals, emphasized the need for unification of the Armed services end maintenance of an "air force in being," capable of defending this country unassisted against air attack from over the Arctic regions as prime requisites in a realistic national defense program. They gave their views before the 1st Joint Air Defense Conference held in Washington under the auspices of the National Aeronautic Association.

#### Navigators Organize

The American Navigation Association has been organized as a non-profit organization of persons interested in fostering research and development in the furtherance of flying and marine safety. The new organization has established headquarters in the Merchants and Manufacturers Building in Houston, Texas, and has designated the Log of Navigation magazine as its official publication. Persons eligible for membership include servicemen or civilians who have had actual experience in the use of navigational aids and employes of firms engaged or interested in the development of navigation.



The Northrop Reporter F-15—Announcement that Northrop Aircraft, Inc., had started quantity production on this new photo-reconnaissance plane under a \$7,500,000 contract with the Army was made coincidental with the first public appearance of the craft at Death Valley, Calif. Range of the F-15 is more than 4,000 miles, its ceiling is well over \$5,000 feet and the Army discloses its speed as "more than 440 miles per hour." Crew sits tandem fashion in the long, slender crew nacelle. Power is by two Pratt & Whitney R-2800-C engines equipped with turbo superchargers, developing 2100 hp for takeoff. The F-15 carries six cameras in 24 optional arrangements.

Magic Touches in "The Modern Magic Carpet"\*
STABILITY... CONTROL... SIMPLICITY

## Stability of the Bell Helicopter



Pipe Line Inspection

HELICOPTERS have many unusual features. They take off and land vertically ... fly forward, backward or sideways ... hover in mid-air ... do many practical jobs no other form of transportation can touch. All of these achievements are unique, but there is something especially different about the Bell Helicopter—it has a new kind of built-in stability—one of the most important developments in helicopter design.

Mounted under the rotor is a "stabilizing bar"—a bar that rotates steadily in a horizontal plane like a gyroscope. This stabilizing bar is linked to the helicopter control system—ingeniously linked so it constantly corrects any tendency of the helicopter to tilt, pitch or sway. This automatic action by the stabilizing bar makes the Bell Helicopter easier to fly... easier to learn to fly... even safer to fly. It introduces... for the first time... built-in stability in a helicopter.

The stabilizing bar...simple...reliable...essential...is another in the long list of exclusive Bell developments—the kind of developments you can expect from Bell Aircraft—the "Pacemaker of Aviation Progress."

#### Famous "Firsts" by BELL

- First cannon-carrying fighter plane—the AIRACOBRA.
- First American jet propelled plane—the AIRACOMET.
- First helicopter with automatic, built-in stability.



\*Reg. applied for U.S. and principal foreign countries.

BELL Mineraft

CORPORATION

P. O. Box 1, Buffalo 5, New York

PACEMAKER OF AVIATION PROGRESS

### 70 Weekly Round Trips on Transatlantic Run Foreseen

#### **PICAO Council Meets to Review Dublin Conference**

By FRANK M. HOLZ

GOVERNMENTS attending the North Atlantic route service conference of PICAO at Dublin estimated that their transatlantic flag-line frequencies would total more than 70 round trips a week by the end of 1946.

Well over half of these frequencies will

be flown by U. S. carriers as follows: TWA 18, American Overseas Airlines 9, Pan American 10 transatlantic and seven to Bermuda. Other estimates included:

Great Britain 14, Canada 7, Sweden 3, Denmark 3, Netherlands 2 or 3, France 2, and Norway 1. Belgium plans two trips a week in 1947 and Eire said it would provide transatlantic services, but gave no starting date.

These estimates were among matters now being considered by the PICAO Council, which reconvened in Montreal April 3 for a full review of the Dublin conference. Other conference action, subject to council review, was:

A recommendation for establishment of A recommendation for establishment of seven traffic control areas with one or more control centers in each between the Arctic Circle and the 30th parallel north. The control areas are Iceland, Stavanger, Iberia-Morocco, Eire-Scotland, Moncton, New York and Azores. Lisbon will be the chief control center.

#### Weather Stations Needed

The conference's air traffic control committee recommended adoption of long-range precision navigation aides, mentioning both Loran and Consol as pos-sibilities. Great Britain reserved its position on this recommendation,

In addition, the meteorology committee plans a system of at least 13 ship stations to report weather, route airline flights, and in emergencies to aid in rescue op-

The conference also considered urgent a substantial increase of Arctic weather stations to be located in Norway, Iceland, Greenland, Labrador and Canada. Creation of a permanent, specially-trained search and rescue organization also was recommended.

An aerodromes and ground aids com-An aerodromes and ground aids com-mittee recommended that governments set limits on "dimensions of runways for civil aerodromes and on maximum wheel loads imposed by civil aircraft." The group was concerned by possible airport obsolescence brought about by heavier and faster aircraft.

A North Atlantic regional secretariat, to be headquartered in London, will have charge of compilation and publication of the North Atlantic route service manual, it was decided at the conference. The secretariat will be named by the PICAO

The current council session will adjourn by April 19 to permit attendance at the European-Mediterranean route service conference which convenes in Paris April 24. Biggest job before the council is making preparation for the PICAO as-sembly meeting May 21.

Poland Signs With Russians, Czechs

Poland has signed air transport agreements with Russia and Czechoslovakia. The Polish Press Agency reports that the Russian agree-Press Agency reports that the Russian agree-ment provides for joint operation of several routes, of which Moscow-Warsaw-Berlin is the most important. It also provides that Soviet technical aid be supplied the Polish airline LOT. LOT and the Czech airline CSA will each operate a Prague-Warsaw service, which is also to be extended to Moscow, ac-cording to reports. cording to reports.

Cuba Sends 1st Class by Air to U. S.

The Cuban airline Express Aereo InterAmericano will provide air carriage for all
Cuban regular first class mail to the U. S.,
according to a new contract with the Cuban
Government, effective immediately. Surface
mail will go onward by rail after it has been
landed in the U. S. The company has been
carrying all Cuban air mail to Miami since
Mar. 3.

VIARCO Operates Internationally

Vias Aereas Colombianas (VIARCO) is re-ported to be operating on the international route Medellin-Cali-Guayaquil-Quito.

IATA Admits Four Airlines

The executive committee of International Air Transport Association (IATA) recently ad-Air Transport Association (IAIA) recently admitted four airlines as active members: British South American Airways, London; East African Airways, Nairobi; Middle East Airlines, Beyrout; Iraqi Airways, Baghdad. There are now 43 active and 13 associate members.

Soviet to Expand Services To 105,000 Miles by 1950

A program to expand the Soviet Union's civil air services to attain over 105,000 route miles by 1950 was described to a meeting of aviation officials and technicians by Air Marshal Fedor Astrakhov, director of civil aviation for the U. S. S. R. Twenty major airports and 16 airstrips are to be added to the present system. Passenger traffic this year will be three times that of 1945 and 17 times as heavy by 1950, Astrakhov stated. An equipment modernization program is under stressing four-engined transports for longrange operation.

A Moscow radio broadcast stated that there have been almost daily Arctic flights since the latter part of March. One air route has been established to islands in the Barents Sea. Other flights cover various mainland Arctic stations and settlements, according to reports of the broadAustralia Approves Reciprocal Agreement

The Australian Cabinet has approved the draft of a reciprocal air transport agreement to be submitted to the U. S., to cabled information. according rights which Australian aircraft would receive under the agreement are also to apply to aircraft of any other British nation. This is in line with recently annation. This is in line with recently an-nounced plans for a transpacific airline operated jointly by the governments of Australia, New Zealand and Great Brit-

U. S. airlines are excluded from tional traffic" between comparatively short sections of transpacific routes. Similarly, British Empire aircraft may not carry traffic over short sections between points in U. S. territories. These provisions are believed to result from difficulties of defining cabotage and Fifth-Freedom rights in the Pacific area.

#### Panair do Brasil Receives Its First Constellation

Panair do Brasil, a PAA affiliate, has taken delivery of its first Lockheed Con-stellation. The airline plans to begin regular services from Rio de Janeiro to London by the end of this month, starting with two round trips weekly. The route will be Rio-Recife-Dakar-Lisbon-Paris-London,

Lourival Nobre de Almeida, editor of the Brazilian monthly Aviacao, told AMERICAN AVIATION that air traffic "between Brazil and Europe will be 15 to 20 times as great as that between Brazil and the U. S." BOAC, Air France, KLM and SILA, as well as Panair, will operate across the South Atlantic. The editor declared that the shortage of pilots is even more acute in Brazil than the shortage of aircraft. Several Brazilian airlines have set up their own training programs; others have sent pilot candidates to the U.S.

Dodero to Uruguay?

Reports from Montevideo indicate that Alberto Dodero is considering the transfer of his proposed airline operations from Argentina to Uruguay. Whether or not the move will be attempted is believed to depend on the attitude of the Peron government toward airline operations by private interests Jose A. Dodero, president of Cia. Argentina de Aeronavega-cion Dodero, had announced suspension of all plans because of conditions im-posed by the Argentine Government.



Tudor II Test Flown—The first Avro Tudor II was test flown recently at Cheshire, England.

Production is under way and the manufacturer, A. V. Roe & Co., Ltd.,
states that between 40 and 50 will be completed this year. The aircraft is powered by four Rolls Royce
Merlin engines of 1776 hp each, giving a maximum speed of 325 mph at 20,000 ft. Range with 60
passengers is 1850 mi. cruising at 230 mph at 20,000 ft. Wing span is 120 ft., length 105 ft., gross weight
34 tons. The Tudor II also is to be built in Canada by A. V. Roe Canada Ltd. and in Australia by the
government-owned factory near Melbourne.





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From Manhattan to the Rio Grande...from the Great Lakes to the Florida Keys
...the Great Silver Fleet weaves a network of swift service over half
the nation. Now Eastern Air Lines knits the texture even closer with
Lockheed Constellations, powered with Cyclones built by Wright Aeronautical.

WRIGHT Air

CURTISS WRIGHT

Wright Aeronautical Corporation

Paterson, New Mersey, U.S.A

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### Slick Airways Flies 5 C-46s, Awaits Conversion of 5 More

#### **New Contract Carrier Hauls** 11 Tons of Magazines Weekly

SLICK AIRWAYS, Inc., contract air carrier headquartered at San Antonio, Tex., has flown 41,000 ton miles in little more than a month's operation with five C-46Es in operation. An additional five C-46s are under modification for commercial use.

Slick's only substantial continuing contract is one held by Time, Inc., for ship-ment of Time magazines from Chicago to Ft. Worth weekly. Eleven tons of magazines are moved each week.

Other contracts in prospect include hauling dresses from the east and mid-west to southern and western markets; vegetables from the Pacific Coast to the midwest and east and farm implements from the industrial midwest to distributors throughout the country.

Some contracts are for single experimental flights, for example, one of several strawberry shipments from Brownsville, Tex., to Toronto, Canada. The company may accept an offer for a trial shipment of West Texas lambs to market. Ranchers have expressed belief that savings in shrinkage and better meat from no bruis-ing will more than offset the increased cost over the rail haul.

Slick Airways is headed by Earl F. Slick, former ATC pilot and son of the late Tom B. Slick, well-known oil operator. The company is incorporated for \$1,000,000. All but one of the new C-46Es were purchased from Reconstruction Figures Corp., and the company has appeared from the company has appeared. nance Corp., and the company has ap-plied for CAA type certificates for them.

Basically designed to conform to civil air regulations, the aircraft contained considerable Army equipment which was removed to provide more efficient handling of cargo. About 2700 lbs. of excess weight has been removed by Slick.

Company engineers have installed controlled temperature units in the aircraft, in addition to movable fibreglass curtains to partition the cabins and refrigeration equipment.

The company recently named J. Prescott Blount as assistant vice president in charge of sales. Prior to joining Slick, Blount conducted perishable shipment research for Wayne University and later served as superintendent of perishable traffic for United Air Lines.

#### Airgo, Inc., Will Haul U. S., Alaska Freight

Airgo, Inc., headquartered at Felts Field, Spokane, Wash., has been organized to carry airfreight on a non-scheduled basis to any part of the U. S. and Alaska. The company is headed by Hillford R. Wallace, who also is president of Wallace Air Serv-ice, Spokane fixed base operation. Wallace said a survey of airfreight pos-

sibilities in the Northwest revealed that many commodities are available for shipment to markets in the midwest, Atlantic

ment to markets in the midwest, Atlantic coast and southern centers of population. Puget Sound sea food, and the horticultural products of Idaho, Washington and Montana—particularly fancy fruits and vegetables—are crops which can be moved rapidly by air, thus saving the packaging and delays encountered in surface transportation.

Dairy products, meats, vegetables and various types of machinery are among inborne products Airgo plans to carry to Alaska. Outbound cargo loads will include furs, mineral products, sea food and

Wallace said special aircraft equipment will be needed to effectively handle an airfreight program, but that the C-47 and C-54 probably would suffice to get the program underway.

#### **AAXICO Hauls Cargo**, Passengers in C-47s

American Air Export and Import Co., operating from International Airport, Mi-ami, has flown two and a half million passenger miles between New York Florida since it began this service three

The company operates five converted C-47s, three owned by AAXICO and two on a lease basis. In addition to the non-scheduled New York-Florida service, the company flies passengers and cargo to British Honduras, Jamaica and other Cen-tral American and Caribbean countries.

AAXICO has been in operation since mid-November, 1945. Officers are Charles A. Carroll, president; Howard J. Korth, vice president and general manager; Glenn H. McNew, superintendent of maintenance, and Thomas J. Carroll, New York busines manager.

The company operates a complete main-

tenance shop and in addition to its own equipment, services five other airlines in addition to carrying on conversion work on Army surplus aircraft.

Island Airways of Friday Harbor, Wash., has filed articles of incorporation at Olympis

has filed articles of incorporation at Olympia and proposes air transport services between Seattle. Bellingham and Onacortes, beginning May 15. Officers are W. W. Paull, president; R. B. Exton. vice president; Sam Buck, secretary, and Cecil Carter, treasurer.

Pan-Maryland Airways has asked the Maryland Public Service Commission for an extension of the April 5 deadline for putting the intra-state operation into service. G. Bernard Fenwick, Jr., president, told the commission that lack of airports in the towns he proposed to service was the deterring factor.

to service was the deterring factor.

American Air Express, New York, on April 2 inaugurated transcontinental air express and 2 inaugurated transcontinental air express and cargo service with DC-3 equipment. Flights will be originated at New York. Boston, Los Angeles and San Francisco. Later five feeder lines will tie in 38 key cities. Door-to-door pickup and delivery service is planned. G. and G. Airlines Co., and Sky Harbor Air-Service are awalting outcome of suit brought by John L. Sullivan, Arizona attorney general.

before Superior Court Judge John D. Lyons, Jr., which seeks to restrain them from oper-Jr., which seeks to restrain them from operating a scheduled airline between Tucson and Nogales. The suit will test a permit issued by the Arizona Corporation Commission to allow an airline operating under a taxi franchise to establish scheduled services.

Empire Air Lines, Lewiston, Idaho, has inaugurated a second roundtrip schedule daily between Cogur d'Alene and Pocstelle. The

inaugurated a second roundtrip schedule daily between Coeur d'Alene and Pocatello. The company's Boeing 247-Ds averaged a 61% load factor for the four-month period, Nov., 1945-Feb. 1946. For the period, 687,330 seat miles were occupied of the 1,128,700 available. Earned revenue was \$50,261.01 for the period, and the number of passengers carried, 3123.

Mayland Alfilmer reduced farce from Battic.

and the number of passengers carried, 3123.

Maryland Airlines reduced fares from Battimore to Rehoboth, Del., to \$7.20 plus tax,
compared with the former \$B\$ plus tax. The
airline will begin service to Salisbury as soon
as the airport there is open for commercial
operations. Baltimore-Easton fare has been
cut from \$4 to \$3.20, plus tax.

Empire Airlines, Emira, N. Y., has ordered six Beechcraft D-18Cs, with delivery expected in June or July. The company will operate the transports in its daily scheduled service to Binghamton. Elmira, Jamestown, Utica. Binghamton, Elmira, Jamestown, Utica. chenectady, Watertown, Plattsburg and Glens

Pacific Overseas Airlines was selected as the racinc Overseas Airlines was selected as the new name for Industrial Air Transport at a stockholders' meeting at the company's head-quarters, Ontario, Calif. Company officers are J. Edwin Jones, president; Leo Dorney, vice president; Joseph Brent, chairman of the board; William Turner, comptroller. The company holds Pacific overseas contract with ATC, and plans, commercial operations. nd plans commercial operations. Viking Air Transport, Los Angeles, has be-

gun non-scheduled cargo operations inaugurating service with a shipment of flowers from Los Angeles to New Orleans. Harry E. Ljung is president of the company, and Robert Reed is vice president.

Is vice president.

Pacific Air Lines, Los Angeles, has inaugurated DC-3 service between Los Angeles and San Francisco on a daily schedule of two round trips. Flights leave Lockheed Air Terminal, Burbank, at 7:30 a.m., and 4:30 p.m., and return from Municipal Airport, Sacramento at 10 a.m., and 7:30 p.m.

Western Continental Air Lines, Grand

Secramento at 10 a.m., and 7:30 p.m.
Western Continental Air Lines, Grand
Central Airport, Glendale, Calif., has published a brochure outlining its service with twin-engine land and amphiblan equipment. The company claims to be the first to devote its entire facilities to personal travel needs on a non-scheduled basis at airline levels.

Dartmouth Airways—A group of World War II veterans has organized Dartmouth Airways II veterans has organized Dartmouth Airwaye and is operating two five-place Cessnas with non-scheduled service between Hanover, N. H., and Teterboro, N. J. Main office is 4 Allea St., Hanover, N. H., and operations are from Municipal Airport, Lebanon, N. H. Officers include: Robert J. Putnam, president; Robert E. Leske, Jr., vice-president-administration; Richard W. Putnam, vice-president-operations; David C. Rennie, treasurer.



Photo Shows Slick Airways' C-46E Ready for Loading

### Use of Douglas Field Will Ease Non-Scheduled Outfits Congestion at Chicago Airport

#### **Non-Scheduled Operators** To Move Within Few Months

By LEONARD EISERER

WHILE NOT a panacea for all the city's aviation ills, the former Douglas airport in northwest Chicago is being posed as early relief for acute conges-

tion at the Municipal Airport.
Recent acquisition of title to the Douglas field from War Assets Administration, giving the city two major airports, clears the way for segregation of certificated operations from other civil aviation activities, as envisaged by civic aviation planners.

Within a few months—as soon as airport equipment totaling \$383,350 can be obtained from war surplus—all non-scheduled and personal flying activities will be transferred to Douglas leaving the Municipal Airport to the regular scheduled airlines, Pat Dunne, air traffic coordinator and safety director, revealed in an interview last week. The half-score non-scheduled lines now serving score non-scheduled lines now serving the Windy City will thus be given oppor-tunity, now lacking, for establishing ground facilities needed for continuing operations, while the airlines, with their new terminal building ready for occu-pancy probably in July, will be in an im-proved position for serving their expand-ing traffic market.

However, the city's long-range program calls for a reversal of functions of these airports, Dunne indicated, with the airlines moving to the northwest field and non-scheduled and private aviation returning to the present Municipal Airport, after Douglas is completely readied for airline operations. This will be in a minimum of three years or maximum of

five, he declared.

To date the non-scheduled operators who started coming into Chicago Municipal Airport from all directions last Dehave been charged no landing fee, but the city council now has one in the hopper. The fee under consideration the hopper. The fee under consideration involves \$12.50 per landing for a C-47 type, little more than half of the La Guardia Field rate, and \$20 for a C-46 with gross load of 40,000 pounds. There will be no landing fee for private or non-properties planes. Dunne promised, no commercial planes, Dunne promised, no matter how large the craft.

Although none are based at Chicago, no less than nine non-scheduled carriers use the Municipal Airport at one time or another, including National Skyway Freight Corp., Norseman Air Transport, Inc., Slick Airways, Inc., Pacific Air Car-go, Los Angeles Air Service, Inc., U. S. Airlines, Inc., Duluth Airlines, Fireball Air Express and National Air Cargo.

Focal point for the operators is the Monarch Air Service hangar, located several hundred feet to the north of the Municipal terminal building. There Shell oil and gasoline is dispensed by Monarch, oil and gasoline is dispensed by Moharch, amid the customary hangar flying of war veterans seeking a living in a highly com-petitive non-scheduled airlines business. There is no reliable estimate of the traffic volume being handled by non-scheduled lines at Chicago. Until re-

cently the city airport office had no rec-ord of some of the carriers who were operating on a touch-and-go basis similar to personal pilots.

This casualness was ended last month, however, when the control tower was instructed by the airport management refuse take-off clearance to any nonwith the city office. Flight information now required and usually phoned in to the city office includes name of carrier, take-off time, type of plane and color, NC number, weight of load, number of nessengers city of origin and dectinapassengers, city of origin, and destina-

Conservative estimates place the number of non-scheduled flights in and out of the airport at well over 100 per month, compared with 322 daily operations by the regular airlines as of Apr. 1. Slick Airways, one of the larger contract freight carriers, has 12 trips weekly through Chicago with C-46s operating from Los Angeles and San Antonio to New York.

With no office space available for nonscheduled lines in the overcrowded terminal building, two of the new carriers—Slick and U. S. Airlines—occupy small rooms in the Monarch Air Service hangar, while a third—National Skyway Freight Corp.—has taken up office space directly

across from the airport,
In general the better financed nonscheduled carriers who are in the business with determination to stay see early eco-nomic regulation by the Civil Aeronautics Board as inevitable and not altogether sirable. They also see many of the smaller outfits succumbing to competition from within and without their group even before such federal regulation develops.

Intra-State Hearings Set

Hearing will be held Apr. 29 at Charles-ton by the West Virginia Public Service Commission on application of Leo John Meisel, doing business as Mountaineer Airline, for a passenger-property route between Huntington and Morgantown via Charleston, Clendenin, Sutton, Bridgeport, and Fairmont. On Apr. 30 hearing will be held on Mid-Atlantic Airlines' passenbe held on Mid-Atlantic Arrlines passen-ger-property application from the ter-minal Elkins to intermediate points Clarksburg, Morgantown, Wheeling, Park-ersburg, Huntington, Charleston, Beckley, Bluefield-Princeton, White Sulphur Springs, Martinsburg, and Keyser.

### On Coast Form Plans For Group Association

Preliminary plans have been started for the organization of an association for West Coast uncertificated cargo operators to function on a basis similar to that of the Institute of Air Transportation, Inc., recently formed in the east.

Sparking the proposed association is Howard Payne, who recently left the War Assets Administration in Washington, to become director of the air freight division of United States Aviation Corp. at Long Beach, California.

A dozen non-schedule companies operating out of Long Beach, Los Angeles and San Francisco have tentatively agreed to enter the association. An organization meeting to complete the set up, approve a name, elect officers and agree upon by-laws is scheduled to be held shortly.

Primary purpose of the association will be to establish mutual policies to govern operating practices and rates and to stabilize maintenance costs, at the same time eliminating the back-biting and rate-cutting tendencies that have grown out of the mushroom development of uncer-tificated operations in the Pacific Coast The association also would be able to take group action on legislation or economic regulation that might affect the business of its members.

#### 100 Miami Charter Outfits Base at Former Army Field

More than 100 charter and non-sched-More than 100 charter and non-sched-uled airline operators are now based at the Miami Army air field, following its release by the ATC for civilian use. These operators formerly were using Mi-ami International airport (36th St.), oper-ating base for certificated scheduled car-

Dade County (Miami) Port Authority et up office space and ticket counters for the charter and non-scheduled operators in the terminal buildings at the former Army field, vacated by the military last

First day's activities at the new civilian field saw 12 plane departures and eight arrivals. An estimated total of 500 pasmostly bound for New York, handled during the first 24 hours of busi-

#### Non-Scheduled Operators to Deliberate Government Regulation, Other Problems

The Institute of Air Transportation, Inc., organization of non-scheduled contract cargo and passenger charter opera-tors, was scheduled to meet in New York Apr. 15 to tackle such problems as gov-ernment regulations and coordinated eco-

At the same time IAT announced a survey covering more than 250 known non-scheduled airline operators in an effort to determine the status of the mush-

rooming industry.

Questions seek to learn the nature of various companies, routes generally flown, equipment on hand or on order, main-tenance facilities, the number of personnel employed, and the percentage of vet-

Agenda of the New York meeting includes such subjects as group purchasing, uniform bills of lading, joint maintenance, packaging and educational public tions. The membership also will discuss ways and means to cooperate with the CAB and CAA.

Approximately 75 non-scheduled operators were expected to attend the meet-



# STIRRING Diary OF AN AIRLINE

First and only airline to span 20 years of continuous operation, Western Air Lines, on April 17, celebrates two decades of service to the American traveler and shipper. Western Air's pioneering is the story of air transportation. Here are a few highlights:



1926: The first passenger service on scheduled air mail flights was inaugurated between Salt Lake City and Los Angeles on May 23.



1928: Western Air placed the nation's first multi-engined cabin planes in Los Angeles-San Francisco service.



1933: The "air mass analysis" system of weather forecasting was pioneered for airline operations. Added to safety and comfort of passengers.



1937: Western Air purchased National Parks Airways, began building routes which today serve more national playgrounds than any other airline.

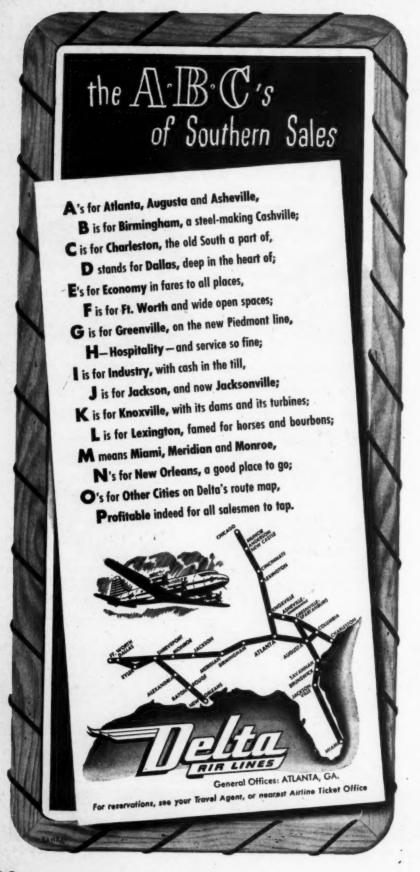


1941-45: In daily flights to Alaska for Air Transport Command, Western carried supplies that helped stop the Jap; set all-time plane utilization mark of 15.9 hrs. per day with a perfect safety record.



1946: With 4200 route miles (7th largest in U.S.) that reach 28 cities in 9 Western states and Canada, Western Air invests \$20,000,000 in faster, larger planes, system-wide improvement of service.





#### **U. S. Air Carriers** Non-Certificated Passenger Carriers, Intrastate Airlines, **Cargo Carriers**

POLLOWING is a listing of 86 nonrecrtificated passenger carriers, intra-state airlines and cargo carriers. Complete details on these companies, including their officers and equipment, will appear in the spring-summer issue of AMERICAN AVIATION DIRECTORY, scheduled for publication about May 15.

This listing contains no fixed base operators nor local charter carriers and is therefore believed to be the most com-plete listing of its kind to appear thus far. The carriers and their addresses:

Cargo Transport Corp., Empire State Air Cargo Transport Corp., Empire State Building, New York, N. Y. Air Freight, Inc., 875 Broad St., Newark, N. J. Air Tours, Inc., Put-in-Bay, Ohio Air Trails, Inc., 348 S. Maple Drive, Beverly

Hills, Calif. Air Transport Corp., 699 Madison Ave., New York 21, N. Y.

All Service Airlines, 2475 W. 133rd St., San Leandro, Calif. American Air Express Corp., 522 Fifth Ave., New York, N. Y.

New York, N. Y.
American Air Export & Import Co., International Airport, Miami, Fla.
American Air Transport, 332 S. Michigan Ave.,
Chicago 4. Ill.
Arizona Airlines, Inc., Box 1181, Tucson, Ariz.
Arizona Airways, Inc., Phoenix, Ariz.
Atlantic-Western Airlines, Danville, Va.
Bird Airways, Municipal Airport, Long Beach
3, Calif.
Bluegrass Airlines, Municipal Airport, Rowling

Bluegrass Airlines, Municipal Airport, Bowling Green, Ky. California Eastern Airways, 406 Montgomery

St., San Francisco, Calif. Caribbean Air Transport, News Tower Bldg., Miami, Fla.

Caribe Airways Line, 36th St. Airport, Miami, Fla.

Fig.
Central Airlines, Inc., 637 Commerce Exchange
Bldg., Oklahoma City, Okla.
Challenger Airlines, Inc., 218 Felt Bldg., Salt
Lake City, Utah
Chesapeake Airways, Inc., Municipal Airport,
Baltimore, Md.
Columbia, Airlines, Inc., 810, N. Charles, St.

Columbia Airlines, Inc., 810 N. Charles St., Baltimore 1, Md. Columbia Skyways, Boeing Field, Seattle,

Dal-Air Lines, Love Field, Dallas, Texas Dartmouth Airways, Inc., 4 Allen St., Hanover,

Davis Airways, Inc., Logan Airport, Boston. Duluth Airlines, Inc., Hotel Spalding, Duluth.

Eagle Air Freight, Benjamin Franklin Bldg.

Santa Barbara, Calif.

East Coast Aviation Corp., Hillsgrove, R. I.

Empire Air Lins, Lewiston, Idaho

Empire Airlines, Inc., LaGuardia Field, New

York, N. Y.

Fireball Air Express, Municipal Airport, Long Beach 8, Calif.

Beach 8, Calif.
Florida-Fresh Air Express. Inc., 101 Bryant Bldg., Lakeland, Fla.
GI Aerial Freight Lines, Municipal Airport, Oakland, Calif.
Gilbert Air Freight Co., 529 W. 28th St., New York 1, N. Y.
Great Circle Airways, Inc., New Orleans Airport, New Orleans, La.
Helicopter Air Transport, Inc., Wilford Bldg., 33rd & Arch Sts., Philadelphia 4, Pa.
Hoosier Air Freight Corp., 103 Park Ave. New

Hoosier Air Freight Corp., 103 Park Ave., New York 17, N. Y.

International Airlines, Empire State Bldg., New York, N. Y.

YOR, N. Y.
International Airlines, Chicago, Ill.
Island Air Ferries, Inc., MacArthur Airport,
Bohemia, L. I., N. Y.
Los Angeles Air Service, 5901 Imperial Highway, Los Angeles, Calif.
Paul Mantz, Grand Central Airport, Glendale,
Calif.

Maryland Airlines, Inc., Municipal Airport, Easton, Md.



A COMPLEX SYSTEM of fluid lines helps make this Grumman "Tigercat" among the most maneuverable of fighting aircraft

As in the "Hellcat", the "Bearcat"—sister ships in this celebrated line—Barco Flexible Joints protect the "arteries" that circulate gasoline, oil, oxygen, air, and water. They absorb vibration and shock, compensate for expansion and contraction, assure longer life in these vital parts of the craft's mechanism.

For complete information about Barco performance on leading makes of military and commercial planes, write to... Barco Manufacturing Co., Not Inc., Aircraft Products Division, 1824 Winnemac Avenue, Chicago, Illinois.

### BARCO FLEXIBLE JOINTS

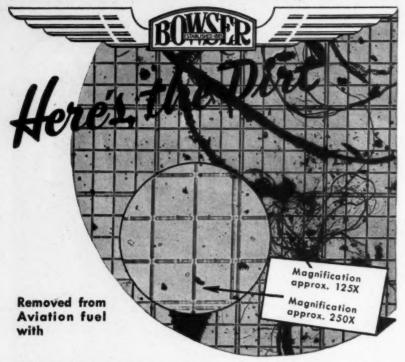
"MOVE IN

FREE ENTERPRISE -THE CORNERSTONE OF AMERICAN PROSPERITY



Not just a swivel joint
...but a combination of
a swivel and ball joint
with rotary motion
and responsive movement through every angle.

DIRECTION"



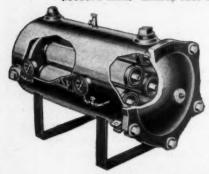
The New Cartridge Type . . . . . .

#### BOWSER AVIATION FUEL FILTER

Pictured above is foreign matter removed from 90 octane aviation fuel by a standard Bowser Filter in routine refueling service at a midwestern airport.

#### BOWSER FILTER MEANS CLEAN, DRY, SAFE FUEL . . . . .

Despite all precautions taken by aviation gasoline manufacturers, many handlings between refinery and airport expose fuel to various contaminative factors. Bowser filter removes particles as small as two microns (.000078 inch)-makes fuel safe for aircraft use.



The new Bowser expendable cartridge type filters are built in a range of standard sizes to 500 g.p.m. capacity. Models to fit any installation requirement. Cartridges can be easily and economically replaced. Illustrated is a portable model for use on fueling trucks.

Write for descriptive material BOWSER, INC., Aviation Division, 1343 Creighton Avenue, Fort Wayne 2, Indiana



Michigan Central Airlines, Inc., Bishop Airport, Flint, Mich.

Minutemen Airlines, 1020 19th St., N. W., Washington, D. C.

Modernaire, Inc., 31 N. E. 3rd Ave., Miami.

National Air Cargo Corp., 940 S. Los Angeles St., Los Angeles, Calif.

National Skyway Freight Corp., 'The Flying Tiger Line,' 412 W. 6th St., Los Angeles 14, Calif.

Caif.
 Nevada-Pacific Airlines, Inc., Carson City Airport, Carson City, Nev.
 Norseman Air Transport, Inc., 78 Farmington Ave., Longmeadow 6, Mass.
 Northeast Airways, Inc., Municipal Airport, Virginia, Minn.
 Northern Airlines, Boeing Field, Seattle, Wash.
 Otto Airlines, Inc., Newark Airport, Newark.
 N. J.

Ozark Airlines, c/o Dixie Air, Inc., Tusca-

loosa, Ala.
Pacific Air Cargo Service, Mines Field, Los Angeles, Calif. Pacific Air Lines, 215 W. 5th St., Los Angeles,

Calif. Pacific Overseas Airline, (Formerly Industrial Air Transport), Ontario, Calif. Page Airways, Municipal Airport, Rochester,

N. 1. Pan-Maryland Airways, Inc., Municipal Air-port, Baltimore 22, Md. Pegasus Air Freight, Inc., Southwest Airport,

Philadelphia, Pa.

Peninsular Air Transport, 44 N. E. 1st Ave.,

Miami, Fia.

Wishin, Fia.

Wishin, Fia.

Wishin, Fia.

Wishin, Fia.

Wishington Ave., New York 17, N. Y.

Robinson Aviation, Inc. (Airline Division) 121

E. Seneca St., Ithaca, N. Y.
San Diego Sky Freight, Lindbergh Field, San Diego, Calif.

Skyway Cruises, 274 Madison Ave., New York 16, N. Y.

Slick Airways, Inc., Milam Building, San Antonio 5, Texas

Southern Commercial Air Transport, Inc. ("Scat System"), P. O. Box 633, Shreveport,

Southwest Airways, Inc., P. O. Box 270, Beverly Hills, Calif. Spartan Airlines, Inc., 1900 N. Sheridan Rd., Tulsa, Okla.

Springfield Air Lines, Inc., 420 Lexington Ave., New York, N. Y. Texas Air Lines, P. O. Box 1308, Houston 1,

Transair, Inc., 730 Fifth Ave., New York, N. Y. Trans-American Airways, 420 Lexington Ave., New York, N. Y.

New York, N. Y.
Trans-American Skyways, 134 N. Mansfield,
Los Angeles, Calif.
Trans-Caribbean Air Cargo Lines, Inc., 36 W.
44th St., New York 18, N. Y.
Trans-Marine Airlines, Inc., Murray Hill Hotel,
112 Park Ave., New York, N. Y.
Trans-Oho Airlines, Inc., Bellefountaine, Ohio
United States Airlines, First Nat'l Bank Bldg.,
St. Petersburg, Fla.
Universal Airlines, Inc., Newark Airport, New-Universal Airlines, Inc., Newark Airport, New-

Universal Airlines, Inc., Newark Airport, Newark, N. J.
Veterans Air Express Co., 11 Commerce St., Newark 2, N. J.
Veterans Air Transport Co., 53 W. Jackson Blvd., Chicago, Ill.
Viking Air Transport, 1096 Airway, Grand Central Air Terminal, Glendale 1, Calif.
Waterman Airlines, Inc., Bates Field, Mobile, Alo. Ala.

Alia.
West Virginia Air Express, Municipal Airport,
Beckley, W. Va.
Western Continental Airlines, Grand Central
Air Terminal, Glendale 1, Calif.
Willis Air Service, Inc., Teterboro Air Termi

nal, Teterboro, N. J.

#### Consultants Form Partnership

Lt. Col. Albert W. Gotch and Maj. Hal D. Crawford, former officers in the ATC, have formed the partnership of Gotch and Crawford, P. O. Box 5574, Washington, D. C., for the purpose of acting as consultants in airport planning, airline management and airline marketing research. The firm has been hired by several cities as airport consultants and recently was retained by Pacific Overseas Airlines as management counsel.

2

# Standard Equipment...



#### ... STANDARD OF PERFORMANCE

ONE after another, the new personal planes are coming off the drawing boards, off the production lines, into the air. Never in the history of aviation were there so many, never was competition keener. That is one reason why the order of improved performance is the order of the day. The new ships—such as the new Ercoupe, shown above—are finer, smoother, faster. But there is one thing that remains unchanged—the designers' preference for Sensenich

Propellers as Standard Equipment. No other propeller is chosen so often by so many.

Sensenich—world's largest manufacturer of wood aircraft propellers, knows how to design and build for maximum efficiency of any aircraft. Be sure that your ship is Sensenich equipped and you can be sure of getting maximum performance. Write for free booklet listing Sensenich Propellers for all aircraft under 250 h.p.



REPAIR SERVICE. If your propeller needs repairing, send it to the Sensenich PROP SHOP. Any make, Prompt and efficient service. Denver and West please use Glendale station.

SENSENICH BROTHERS . Main Plant, LANCASTER, PA. . West Coast Branch, GLENDALE, CALIF.

#### Ray Predicts Support For Feeder Systems

Belief that "a considerable number" of Belief that "a considerable number" or smaller cities and towns will generate enough traffic to support feeder service was expressed by James G. Ray of South-west Airways Co., feederline applicant of Beverly Hills, Calif., speaking at the SAE National Aeronautic Meeting in New

Ray stated that at least three manufac-turers are designing planes especially for feeder operations, and one such plane—

feeder operations, and one such plane—the Martin 202—was described by Maxwell L. Bassett of Glenn L. Martin Co. He said the 202, a twin-engine, 2100 hp, 30-40 passenger aircraft, can be operated at approximately 5½c per ton-mile.

Bassett reported survey findings as indicating that 69% of air travel is under 500 miles, a factor demanding safety, economy and passenger comfort. These demands and others make feederline flying more difficult than trunk line operations, according to Ray, who said a ations, according to Ray, who said a greater proportion of scheduled mileage must be flown on time, delays must be prevented, and operating hours must be such as to accommodate the public.

Location of American communities 25 to 30 miles apart establishes the route attern, he explained, and arrangements must be made not only for high flying speeds—at least 120 mph—but for fast loading and unloading. The planes must be capable of operating from 2,500-ft. runways, no communities can be overlooked, and frequent service is mandatory,

#### Wien-Alaska May Build Hotel at Point Barrow

Wien-Alaska Airlines of Fairbanks ha announced a proposal to construct a hotel on the shores of the Arctic Ocean at Point Barrow, Alaska, to accomodate the tourist demand for this northernmost trip.

The company, headed by Sigrud Wien, currently is operating 16 aircraft of all types, including two twin-engine Boeing 247-Ds. One of the latter ships recently was returned from the Boeing plant in Seattle, where it was completely modernized.

#### Col. Gates Wins DSM

Col. Samuel E. Gates, former assistant chief of staff, Chief of Organization and Contract Supervision, Headquarters, Air Transport Command, was awarded the Distinguished Service Medal by Lt. Gen. Harold L. George, ATC Commander, Col. Gates, now discharged from service, was international counsel for the Civil Aeronautics Board prior to his entry into service.

#### CONSULTANT FOR NEW AIR Operations

Executive with 29 years' experience as pilot, operations mgr., airline execu-tive, and government aviation official, with thorough knowledge of airlines CAA and CAB, is available to charter operators and others for consultation on any phase of airline operations, govrules, regulations, and pro-Will also act as Washington representative for non-competitive com-panies. Box 485 American Aviation, American Bidg., Washington 4, D. C.

#### United Spends \$500,000 On Downtown Offices

Downtown traffic offices along United Air Line's system are being expanded and relocated at a cost of approximately \$500,000. Following a similarity of design, United has opened new offices at Detroit, Omaha and Toledo this year, and work is under way on contsruction or remodeling of downtown offices in Los Angeles, Cleveland, Philadelphia, Akron, Cheyenne, Boise, Ogden and Stockton. The company also plans to open a new office in Wall





Proposed offices at Chicago (upper) and Denver

St., New York City, and remodel its Pennsylvania Hotel office there.

United recently leased space in Chicago, in the Goddard Bldg, Monroe and Wabash Sts., and in Denver in the Brown Palace Hotel. B. B. Gragg, United's distance of the Standard Budge, and the company of the Standard Budge, and the standard Budge Bud rector of traffic and sales, said the company would open offices in the following off-line cities: St. Louis, Minneapolis, Cincinnati, Pittsburgh, Baltimore, Buffalo, Providence, Springfield, Mass., and Tor-

New and enlarged offices, constructed during the war, include two in San Francisco and one each in Seattle, San Diego, Long Beach, Reno, Tacoma, Vancouver, Omaha, Washington (Shoreham Bldg.), Boston, Hartford, Chicago (Stevens Hotel) and Milwaukee.

#### **Army Develops Projector** To Show Movies in Flight

Development of a new type of light-weight film projector for the showing of weight film projector for the showing or movies to air passengers in flight has been announced by the Air Transport Command and the Army Signal Corps. ATC officials say the device is capable of showing anything from a "singing short" to a full-length feature, and that it is readily adaptable to commercial air transport. The projector was developed primarily to provide entertainment for wounded troops during long flights. The projector was developed

The self-contained units is adaptable to The self-contained units is adaptable to either loudspeakers or headsets for individual choice of listening. The system is semi-automatic and can be operated by a cabin attendant. The unit now weighs 500 pounds, but ATC officials say it can be reduced to less than 100 pounds and will cost less than \$750 a unit.

#### **Transport Notes**

Opens New Office-TWA has opened a new ticket office in the Shoreham Hotel

2500 Calvert St., N. W., Washington, D. C. Bests Records—Panagra transported 92,941 passengers, 362,178 pounds of mail, and 2,534,419 pounds of express while flying 5,542,630 miles during 1945.

Passenger Miles Up-Chicago & Southern flew 27,434,000 revenue passenger miles during the first three months of 1946, an increase of 89.8% over 1945.

Big Shipment-Panagra carried 80 cases of Fleischmanns yeast, weighing 4576 lbs., from Lima, Peru, to Guayaquil, Ecuador, biggest single shipment in the company's history.

More Stewardesses-United Air Lines is training more stewardesses than ever before in the company's history. A total of 248 will be trained in the first quarter

Passengers Up—Hawaiian Airlines car-ried 15,412 passengers in February, a 68% increase over the same month in 1945

Vets Get Jobs-United Air Lines said more than 75% of the 2900 new personnel employed since V-J Day were veterans. The company now has 8600 employes. Revenues Up—Pacific Northern Airlines,

Alaskan airlines, reported operating reve mues for January and February, 1946, were 271% higher than in 1945. Big Pilot Class—Braniff Airways is

training a pilot class of 30, largest single pilot group in the history of the company. All are veterans.

Express Gains—Air Express Division of Railway Express Agency reported in-ternational air express shipments in February were 34% ahead of the same month

Revenue Miles Gain-Northeast Airlines' revenue passenger miles were 12,847,261 in 1945, a 203% gain over the previous

Pan Am Gains—Pan American Airways reported a 200% gain in the number of passengers flown in and out of Miami in the last 30 days, compared with a year

Traffic Up—Braniff Airways operated 12,816,248 revenue miles in February, a 66% increase over the same month in

Revenues Gain-Mid-Continent Airlines operating revenues for February were \$322,078, a 99% increase over February,

More Seats-United Air Lines expects to have twice as many airline seats this summer as before Pearl Harbor.

Safety Award-Panagra received the annual aviation safety award of the Inter-American Safety Council for having com-pleted 1945 without an accident or fatality.

#### United Moves Training to Cheyenne

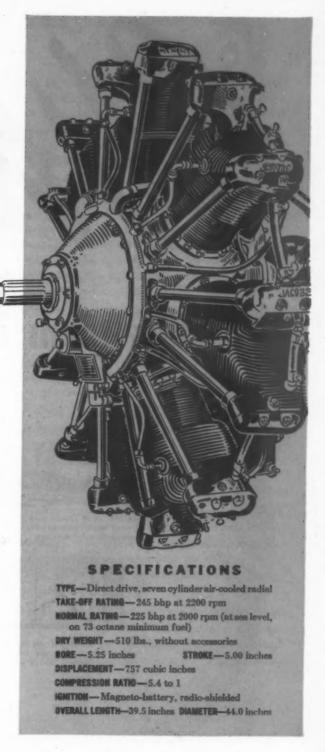
All ground training of United Air Lines' passenger agents, traffic and coun-Lines' passenger agents, traffic and counter personnel, stewardesses, wire operators and mechanics will be consolidated at Cheyenne, Wyo., with a peak of approximately 500 students and staff members to be reached by July, 1947. R. F. Ahrens, vice president in charge of personnel, said classroom and office facilities will be built in what formerly was United, modification center, with train-United's modification center, with train-ing to get underway this summer. D. B. Woodyatt is United's superintendent of educational service.

## **AAF Surplus JACOBS** rebuilt R755-9's

### **Factory Guaranteed**

The R755-9's are the famous "Workhorse of the Air" engines that established such magnificent performance records in the twin-engine AT-17's and UC-78's used in training bomber pilots . . . delivered hundreds of hours more than the 600 recommended by the manufacturer between major overhauls-despite grueling service, and more time at full throttle than any other service plane engines... Today, they are working for scores of feeder lines and transport services, flying peacetime payloads with minimum operational costs.

In the Jacobs plant at Pottstown, these engines have been completely torn down, inspected and rebuilt, with new parts installed if required. All latest modifications have been incorporated and each engine has been checked and run-in on our test stands... carries the manufacturer's rebuilt guarantee. Available singly or in lots, these R755-9's represent important savings over original cost for the engine that will serve dependably with less care and lower maintenance costs than any other aircraft engine in its rated class today. Immediate delivery...Complete information on application ... Jacobs Aircraft Engine Company, Division of Republic Industries, Inc.





this team is a leader in VHF



Le First voice circuits were single iron wires with ground return. Frequency limitations, noise and high losses soon ruled them out.



2. Big improvement was the all wire circuit—a pair of wires to a message. Later came carrier which stepped up frequency and permitted several messages per circuit.



**3.** Lead covered cable compressed many wire circuits into small space—took wires off city streets. But losses are prohibitive at very high frequencies.



To Coaxial cable—a single wire strung in a pencil size tube—extended the usable frequency band up to millions of cycles per second and today carries hundreds of messages per circuit, or the wide bands needed for television.

### transmission



5. Wave guides, fundamentally different in transmission principle, channel energy as radio waves through pipes; vary in size from several inches to under 1 cm.; become smaller as frequency rises.



**6** Late model rodar wave guides, similar to that used to feed the antenna above, can carry 3½ cm. waves at more than eight billion cps. Experimental guides for still shorter waves are being tested.

Back in 1933, Bell scientists established an historic first when they transmitted very high frequency radio waves for hundreds of feet along hollow pipes called wave guides. For them it was another forward step in their long research to make communication circuits carry higher frequencies, broader bands and more messages per circuit.

### Continuing Research showed the way

From the days of the single open wire line—through all-metallic circuits, phantoming, cable, carrier systems and coaxials—up to today's wave guides, every improvement has been the result of continuous fundamental study.

When Bell Laboratories started work on wave guides, there was no immediate application for the microwaves they guided. But the scientists foresaw that some day wave guides would be needed—so they kept on working until they had developed the wave guide into a practical device.

With the war came radar—and the problem of conducting microwave frequencies. Bell Laboratories had the answer—wave guides—without which radar at the higher frequencies would have been impractical.

#### What this means to YOU

Year after year, Bell Laboratories have continued to develop methods for handling higher and higher frequencies. Year after year Western Electric has provided equipment putting these scientific advances to work. This team has become the natural leader in the field.

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\* SECTIONAL VIEW OF THE 52 PASSENGER DC-6 AIRLINER



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### **DOUGLAS DC-6**

Sister Ship of the Famous C-54 Combat Air Transport

# Airline Commentary

WE HAVE LONG maintained, along with a lot of other people, that the tipping of porters at airports is a black eye to air transportation, which in all other respects has been so remarkably free of this sort of evil . . . So without suggesting any wonderful solution, we want to make a few comments . . Just how much money a so-called "skycap" earns seems to be a mystery, because he can let his conscience be his guide in reporting income . . But we can state that the average skycap does all right . . We were somewhat startled to learn last week that the skycaps at Washington National Airport receive a fixed salary of only \$65 a month (they're paid by the airlines) . . But we were also told that a goodly portion of the skycap force at Washington National has been there since the airport opened (despite high-paying war jobs) and that you couldn't pry them away from their jobs . . This would seem to indicate that they're not exactly starving to death . . Now let's do a little figuring . . We understand that you can't get a skycap at Washington to admit that he ever took in over \$2 a day in tips . . So, with our tongue way over in our cheek, let's accept their figure and multiply it by 35 skycaps employed (\$70), then by six days a week (\$420), then by 50 weeks . . . The total, air travelers, is \$21,000 . . If we use \$3.50 a day, which we understand skycaps will admit at other airports, the yearly bite is \$36,750 . . A sizeable figure remains even if you knock off something for days when the weather is socked in . . Suppose we applied a figure of \$25,000 yearly to 10 big airports . . That's a quarter of a million dollars . . . Of course someone will remark that it's wonderful what you can do with a set of figures, but we walk take from the limousine to the ticket counter . . .

It seems that Eastern Air Lines has a reservations clerk in Atlanta by the name of Dorothy Love . . . Miss Love was trying to get a seat for a passenger but hadn't been successful, so she sent him a telegram: "Unable to seat you on flight 66. Have listed you as a standby." . . . She signed it "Eastern Air Lines, Love" . . . The fellow who received the wire couldn't figure out why Eastern had suddenly become so affectionate, but anyway he wired back, "Love to you also. Thanks very much for trying" . . . Miss Love had better be more careful in the future . . . That name could cause trouble . . .

We noted with interest two newspaper stories last fortnight . . They appeared on different days and in different papers, but when you put them together they indicate that air transportation in this postwar period is going to have to be sold . . One story told about a train that one railroad plans to put into service (not immediately, but reasonably soon) between some of the cities on its system . . There will be soft music, movies, a library, individual radios, a nursery, easily-opening doors, etc. . . The other story described the luxurious ocean liners being planned by steamship companies to meet air competition . . Then we ran across a railroad advertisement telling of the \$56,000,000 the company is spending on new equipment . . It is buying almost five solid miles of "luxury coaches" . . All this spells hard work for the airlines . . Air transportation, in the first place, must be safe . . It will have to be dependable—and this means a lot of work on all-weather flying systems . . It must be reasonably inexpensive . . . It must be easy and simple to use—a friend of ours complained recently that from the time he bought his ticket until he boarded theirplane he was required to produce his ticket and baggage stubs six times for a 90-minute flight from New York to Washington . . And, even if all these musts are attained, air transportation will still have to be sold . . . There's evidence, as pointed out in our last column, that some of the airlines aren't missing any bets . . . We hope the rest don't, either . . .

Delta Air Lines' Vice President-Traffic Laigh Parker has figured out that one additional passenger aboard each of Delta's present flights at all times would mean a total of \$371,786 additional revenue per year . . . He's out to lick the no-show problem and to fill every available seat, and we find his figures interesting . . . While on the subject of Delta, we commend Public Relations Director Jim Cobb and Editor Juli Daves on publication of a newsy and attractive houseorgan, "Delta Digest" . . .

After writing the first paragraph of this column relating to tipping of skycaps, we received a report from a West Coast source which stated that Leo Dwerlkotte, executive vice president of Western Air Lines, has decided that it is high time something was done about airport porters who annoy passengers in their efforts to collect tips . . . Dwerlkotte plans to call the other airlines together to correct the abuse with the opening of the Los Angeles Municipal Airport . . . "I think that might be a propitious time to do something about it," he said. "If we take the proper steps at the start, we should be able to keep the situation in hand" . . . We'll be watching with great interest, Leo . . .

ERIC BRAMLEY.



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Sets the Pace

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International Services

### TWA Starts Cairo, Rome, Athens Runs

Trans-World Airline (TWA) inaugur-ated service to Cairo, Rome and Athens ast fortnight with DC-4 equipment. Flights are being made twice-weekly over the route, all originating at Washington, D. C. Service to Geneva was scheduled to be inaugurated shortly.

American Overseas Airlines extended its foreign service to include Oslo, Nor-way, effective April 5. The Norwegian service is a continuation of the present weekly round trips to the Scandinavian peninsula. Stops will be made at Gander, Shannon, Copenhagen, and Oslo, and con-tinue on to Stockholm.

Pan American began its charter flights to Japan and China, carrying UNRRA personnel. Return trip was made via the Great Circle route with fueling stops in the Aleutians and Alaska.

To carry out its UNRRA charter con-tract, Pan American is establishing an operations base at Adak, Alaska, to expedite flights over the Great Circle course between Seattle and the Orient. Constellation equipment is being used in the transpacific operations.

### **Dual Fuel Systems** To Be Made Mandatory

Dual fuel systems will be mandatory on all multi-engined scheduled air car-rier aircraft on and after Oct. 31, 1946, under an emended Part 61 Section .301 of the Civil Air Regulations promulgated by the Civil Aeronautics Board.

The amended regulation requires that "fuel systems of scheduled air carrier air-craft shall be arranged to permit opera-tion in such manner that the failure of any one component will not result in the irrecoverable loss of power of more than one engine. A separate fuel tank need not be provided if the Administrator finds that the fuel system incorporates features which provide equivalent safety."

### MCA Sets Up System-Wide **Employe Training Division**

Organization of a new training division within the personnel department of Mid-Continent Airlines will enable the carrier to provide employe training on a com-pany-wide basis for the first time in its years of operation, says Carrol K.

Ward, director of personnel.
Simultaneously, Ralph E. Wilson has been appointed supervisor of training, in charge of training throughout the system, and William Weller, former district traffic manager, has been promoted to the post of training instructor.

### Philippine Air Lines Operates 5 C-47s On Routes from Manila, Will Add 3 Planes

Philippine Air Lines, Inc., with head-quarters at Manila, P. I., is now operating with five C-47s and soon will have eight planes in operation, according to Art Stewart, former traffic manager for the western region of Transcontinental & Western Air, Inc., who is vice president and advisor for the Philippine company. The C-47s are being converted using Mc-Arthur seats and soundproofing by Thompson & Co.

Service was launched on February 14 with three routes from Manila to seven stops in the islands.

Ten TWA employes were sent to Manila to aid in inaugurating the airline and all will remain for one year. In addition to Arthur L. Stewart there are: W. W. Linder, formerly with TWA and as-

sistant treasurer of TACA in Central America. who is treasurer-comptroller of Philippine Air Lines; Frank E. Howell, formerly regional agency and interline manager for TWA's western region, who is traffic manager; Dean Stockman, formerly TWA western region traffic representative, assistant traffic manager; E. J. O'Brien, formerly TWA d.t.m. at Albuquerque and Phoenix, who is field supervisor; Frank Langenfeld, formerly with TWA's training division, who is meteorologist and flight sup-

avision, who is meteorologist and hight sup-erintendent.

Also, L. C. Cole, former TWA station man-ager at Burbank, who is superintendent of passenger service; W. F. Lindsay, former traffic and reservations representative for TWA at Washington, who is reservations manager; Miss Elaine Smith, former flight instruc-tor at Burbank, now chief flight attendant; and Mrs. Ruby Williams, formerly chief ticket representative at Los Angeles and Albuquerque, now in charge of ticket counter instruction.



Shown at the inaugural ceremony of Philippine Air Lines at Manila are, left to right, lower row: Mort Bogey, president, Schroeder-Rockefeller Bank, New York City; L. C. "Memphis" Cole; Capt. Hamilton, formerly in Army service, now PAL purchasing agent, Manila; Capt. Robbins, former Army pilot, now PAL pilot; Capt. Stokke, former Army, now PAL pilot; Warren F. "Bud" Lindsay; Ted Weymouth, former Army, now PAL pilot; Capt. Stokke, formerly in Army service, now PAL's superintendent of maintenance at Manila. Top row, left to right: A. Fanlo, managing director for A. Soriano y Cia, Manila; J. Schultz, Col. P. I. "Pappy" Gunn, former Army pilot, now PAL's vice president, A. Soriano, and Manila; W. W. Linder; Carmen Amechazurra, new PAL flight attendant; Col. P. I. "Pappy" Gunn, former Army pilot, now PAL's vice president—operations; A. M. "Tony" MacLeod, PAL's executive vice president; Miss Elaine Smith; A. L. Stewart; Mrs. Ruby Williams; Col. A. Soriano y Cia, now PAL's executive vice president; Miss Elaine Smith; A. L. Stewart; Mrs. Ruby Williams; Col. A. Army pilot, now PAL co-pilot; Rodolfo O. Tirono, former Army pilot, now PAL co-pilot; Just Strosier, formerly in Army service, now PAL mechanic.





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Mr. Franklin N. Knapp—another famous Esso Dealer, is President of the Tennessee Flight Operators Association. He has been flying for almost 20 years and in 1939 began the successful operation of Knapp Flying Service, which still flourishes at Clarksville, Tennessee.

## "Esso goes into every plane stationed at our field!"

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we wanted products of high quality for ourselves and for our customers. Our customers had been asking for Esso products in the servicing of their planes — and we realized that these products could be depended upon for service and satisfaction. Furthermore we knew that Esso was a pioneer in aviation, and their research has

placed them with the leaders in this field. So we switched to Esso.

"Since switching, we have found Esso representatives quick to lend us valuable aid in the form of good advertising support, marketing hints, windsocks, computers, and publicity.

"We have had the opportunity through years of experience to try ALL of the available products. Low maintenance costs to ourselves and better satisfied customers have been the consistent result of using Esso. 97

Since we fueled the Wright Brothers' first flight at Kitty Hawk in 1903, Esso has been making quality petroleum products for aviation. Because Esso Aviation Products are backed by so much experience and never-ending research, pilots know they can depend on them. They are sold by over 500 airport operators in the 25 states indicated.



MR. AIRCRAFT OWNER: For ready reference keep this list in your map case. Esso Aviation Products are on sale at the following airports in the Tennessee area. Memphis Flying Service, Memphis Municipal Airport; P. A. Keith, Ripley; Dyersburg Flying Service; Obion Flying Club, Walter Kennon (Riddle-McKay), Union City; Gill-Dove Airways, Martin; Milan Flying Service; Jackson Aircraft Sales, Gillespie Airways (McKellar Field), Jackson; Knapp Flying Service; Clarksville; Gillespie Airport, Cornelia Fort Airport, Nashville; Franklin Flying Service; Norman Air Service, Mt. Pleasant; Pulaski Flying Service; Wilks Flying Service, Fayetteville; Boyd Field, McMinnville; Tri-City Airport (Kingsport, Johnson City, Bristol); Lebanon Flying Service; Crossville Flying Service; Cleveland Municipal Airport; Lovell Field, Chattanooga; Skylines, Inc., Humboldt; Bomar Airport, Shelbyville; Graves Airport, Paris; Brownsville Municipal.

### airline Personnel

#### Executive

Carter Lane Burgess, formerly on assignment with the Department of State, has been appointed as assistant to Jack Frye, president of TWA. Lt. Col. Lear B. Reed, former FBI and Army intelligence agent, has joined the executive staff of TWA.

H. Heinrich Spang, an examiner on the Civil Aeronautics Board's staff, has been appointed assistant vice president of Colonial Airlines. He assumes his duties with Colonial on April I and will handle the company's activities in Washington.

### Traffic and Sales

Maj. Hans V. Tofte has been appointed district traffic manager for American Overseas Airlines at Copenhagen, Denmark.

L. Guy Carter has been named reservations manager for the southern division of Braniff Airways, with headquarters in Austin, Tex.

W. W. Wehner, returned from military service, becomes district traffic and sales manager for United Air Lines at Fresno, Calif. J. G. Tucker, acting dtm, remains as his assistant.

Reput H. Nehr, recently advanced by American Airlines to director of passenger sales in the com-



Reed

Smith

Burgess

#### Miscellaneous

Lt. Comdr. Bertram F. Sternfield, USNR, has been named director of personnel for Colonial Airlines. Harold J. Halton, Coast Guard veteran, becomes director of Colonial's news bureau.

R. C. Williams, formerly associated with Western Air Lines, has been named superintendent of engineering and maintenance by Pacific Northern

engineering and manufacture and arrivaryal Airlines.

R. Haskell Blaisdell, former Pan American Airways' supervisor of passenger service at Lisbon, Portugal, has been named flight service superintendent of the Atlantic division.

Lt. Comdr. John D. Mooney, USNR, has been appointed legal officer for PAA's Atlantic division, and Dorothy Mills, one of the first PAA flight stewardesses to fly the Atlantic, has been named chief stewardess of the Atlantic division.

Ken Frogley, Army dischargee, returns to American Airlines as director of public relations, western



Jack W. Birch, Navy veteran and former American Airlines employe, has been appointed director of station operations for Colonial Airlines. Edward D. Glover has been named assistant station manager in charge of air med assistant station manager in charge of the cargo for TWA at Chicago Airport.

Paul L. Foster, an Eastern Air Lines' pilot since November 1931, has been appointed chief pilot in charge of the more than 300 pilots based at Miami and Jacksonville. H. Massey Brown, another veteran EAL employs, has been named regional field supervisor with headquarters at Charlotte, N. C. Clayton Stilles, who joined United Air Lines in 1933, has returned from the Army to his old job as flight captain, Chicago-New York.

Fred Harschelman, Jr., formerly associated with several domestic airlines and the CAA, has been assigned to Delta Air Lines' staff as chief inspector.

S. N. White has been named by American Airlines to the newly created position of supervisor of stewardess service in Los Angeles. He will be assisted by Miss Janet Barker, chief stewardess.

### Trans-Canada Mail Payments Now on Pound-Mile Basis

A major change in the method of paying Trans-Canada Air Lines for carry-ing the mail occurred Apr. 1 when the company switched from a mileage rate to a pound-mile basis. This marks the first time that a Canadian carrier has been paid on this basis,

During the first year of the system, TCA will receive 1.5 mill per pound-mile (compared with .3 mill received by many U. S. carriers). This rate drops to 1.3 mill, 1.1 mill and .9 mill in succeeding years.

In the past, if TCA had a yearly deficit, its mail pay was increased; if there was a surplus the pay decreased. Under the new system, however, annual financial results of the company will not influence the mail rate.



Wiseman

Wahner

Paige

pany's main New York offices, has been succeeded as Newark sales manager by J. Harry Wiseman, formerly a lieutenant commander with NATS. Leonard J. Boylan, discharged Marine lieutenant, becomes American's New York manager of passenger

Sigmund Janes, Jr., an ATC veteran, has been promoted by Colonial Airlines from reservations supervisor to New York treffic manager. Foster Greesser, Army veteran, returns to Colonial as supervisor of traffic sales, and Maughan C. Gould, Nevy veteran, becomes coordinator of air freight.

Daniel L. Sinkier, discherged AAF lieutenent colonel, has rejoined Eastern Air Lines as New York district manager, succeeding James P. Farrell, who has been transferred to Mexico City as Eastern's district manager. James W. Paige leaves the Mexico City post to become EAL city manager at Philadelphia. Alex Harris, city manager in Newark, is manager of EAL's new downtown ticket office in Newark. G. T. Impara, formerly of Eastern's training department, becomes field traffic manager at International Airport, Miami.

W. R. "Ike" Lynn, formerly with Mid-Continent Airlines and Braniff Airways and recently of ATC, has joined Alaska Airlines as assistant to B. B. Edwards, general traffic manager, with headquarters in Anchorage. A. J. "Bert" Kinsman, former general traffic manager of Northwest Airlines, has been appointed district traffic manager of Alaska Airlines in Seattle.

region, with headquarters at Los Angeles. He replaces Larry Dierks, who is transferring to AA's San Francisco office.

Miss Peggy Booker has been appointed chief hostess for Continental Air Lines. New regional hostesses-in-charge in the Continental system are: Miss Marquerite Hugo, Denver; Miss Shirley French, Tulsa; Miss Marlan Nixon, San Antonio.

C. T. Smith has been named personnel representative for United Air Lines at Denver. Rexford E. Bruno, with UAL for six years, becomes regional manager of accounting at San Francisco.

Comdr. Lee Machen, recently released by the Navy has rejoined Eastern Air Lines as assistant circuit supervisor with headquarters at Miami.

Miss Mary Frances Evans, Miss Jane Horton and Miss Jeanne Hutchison, newly appointed hostess supervisors, have been assigned by Pennsylvania-Central Airlines to Birmingham, Milwaukee and Pittsburgh, respectively.

William C. Greenlaw has been named supervisor of plant maintenance for American Airlines at LaGuardia Airport, New York.

R. Todd Crutchfield, administrative assistant to the director of personnel, Chicago & Southern Air Lines, has been pamed director of personnel.

Robert H. Wharton, Jr., Delta Air Lines' chief accountant has been apprend director of personnel.

Robert H. Wharton, Jr., Delta Air Lines' chief accountent, has been named director of personnel. Wesley Warren continues as employment manager under Wharton. At the same time the company advanced Todd G. Cole from the post of general auditor to chief accountent.

#### Col. Nichols to ARINC

Col. Reeder G. Nichols, who recently resigned from the PICAO secretariat where he had been chief of the communications section, has joined Aeronautical Redio. In the secretarian to the tical Radio, Inc., as assistant to the president assigned to international activities. Before the war Col. Nichols was chief of the Radio and Electrical Sec-tion of the Civil Aeronautics Administraleaving that post to enter military

#### Samuelsson Joins Potter Firm

Sigfried O. Samuelsson, former northern regional traffic manager of U.S. Airlines, has joined Russell H. Potter, Associates, Inc., New York public relations counselors. Samuelsson is chairman of the air cargo committee, aviation section of the New York Board of Trade and was recently elected executive vice president of the Institute of Air Transport.

### Skelding Heads Canadian Pilots

Capt. C. L. Skelding, Trans-Canada Air Lines pilot, has been elected president of Canadian Air Line Pilots Association, succeeding Capt. R. E. Hadfield, also of TCA.



















Harris

Machen

Foster

Booker

Mills

Impara

Blaisdell

Mooney

Glover



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handy power shovel for construction and maintenance work. And there are many other units of auxiliary equipment that can be used with your Oliver.

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### **OLIVER-Cletrac**



### New Services: Colonial Opens Schedules to Washington

COLONIAL AIRLINES inaugurated service between Montreal-Ottawa and Washington, D. C., April 15, with intermediate stops at Syracuse, Reading and Baltimore. Four additional certificated stops will be added when landing facilities are adequate.

Colonial's schedules called for two flights daily originating at Montreal and one at Ottawa. It will be the first time that the capitals of the U. S. and Canada have been linked by

direct air service.

• Chicago & Southern Air Lines in-augurated service to Paducah, Ky., April 1, serving the city on schedules between Memphis and Detroit on Flight 60 northbound and Flight 51 southbound. The latter flight con-tinues on to Jackson, Miss., and New

 Meantime, Western Air Lines got its Denver-Los Angeles service under-way with DC-4 equipment, via the intermediate points Las Vegas, Nev., and Grand Junction, Colo. Initial

schedules were limited to contact flying only, and were being operated on the basis of one round-trip daily.

 PCA stepped up its DC-4 service fly-ing from Milwaukee to Pittsburgh, Newark and New York. Schedules called for one round-trip a day, but in addition a daily flight was set up between Pittsburgh and Newark with DC-4s, PCA was scheduled to in-augurate daily round-trip Newark-Pittsburgh-Birmingham service with DC-4 equipment April 15.

 United Air Lines reported that its San Francisco-Los Angeles commuter service, which is set up on the basis of 22 schedules daily—hourly departures on the hour-was meeting with good demand. As demand increases, more schedules will be added.

• Eastern Air Lines took delivery on its first converted DC-4 from the Glenn L. Martin Co., but made no announce-ment as to what schedules would be inaugurated with it. The Eastern DC-4s will carry 56 passengers.

#### Richter Receives Award

Capt. Paul E. Richter, USNR, executive vice president of TWA, has been awarded the Legion of Merit for his services with the Naval Air Transport Service, first as operations officer, and later as assistant chief of staff for operations. He returned to TWA last October.

#### EAL Elects Cox to Board

James M. Cox, Jr., of Dayton, O., vice president of the James M. Cox chain of newspapers and radio stations, has been elected to the board of directors of Eastern Air Lines. Cox was commissioned in the U. S. Naval Reserve in May, 1942, served with NATS, and was discharged as a lieutenant commander in August, 1945.



### **Tentative Rate Set** For Northeast Routes

A tentative mail pay rate of 14.37 cents per airplane mile for Northeast Airlines Routes 27 and 27-F was set by the Civil Aeronautics Board in a Show Cause Order and an attached Statement of Tentative Findings and Conclusions issued last fortnight. The rate, computed on the basis of a daily designated mileage for mail service of 11,472 miles with a base poundage of 300 pounds, is to be effective from May 1, 1946. An excess poundage rate of 0.03 cent per airplane mile for each pound in excess of the base amount is also provided.

The Board stated that it believed this rate would provide a "reasonable mar-gin of security against the risks inherent in (Northeast's) . . . current transitional current transitional in (Northeast's) . . . current transitional period," but added that the rate was of an "interim character." The Show Cause order was issued nearly 11 months after Northeast had petitioned, last May 14, for a mail rate for services on its Route 65 (since consolidated into Route 27).

Tentative rates for past periods also were set by the Board's order. For the period from May 1 to Oct. 31, 1945, a rate of 18.65 cents per airline mile to be rate of 18.65 cents per airline mile to be paid without reference to base poundage or mileage was prescribed. For the period Nov. 1, 1945, to Apr. 30, 1946, the rate was tentarively set at 18.65 cents per airplane mile to be paid for a base poundage of 300 pounds of mail for a daily designated mileage of 10,930 miles. For months on which the daily designated mileage exceeds the base figure, a formileage exceeds the base figure, a formula for increasing the mail compensa-tion proportionately is provided.

In its attached statement the Board stressed that it intended to fix mail rates at levels which would provide airline managements with constant incentives for improving service and cutting costs. It stated that it did not intend to write the operations of . . . (Northeast) or any other carrier by guaranteeing any profit without regard to the efficiency and economy of management or the cost level at which the same or similar service is performed by other carriers."

### Paul L. Thomas Will Direct **NWA's Construction Program**

Northwest Airlines has created a new division in its engineering and planning department to di-

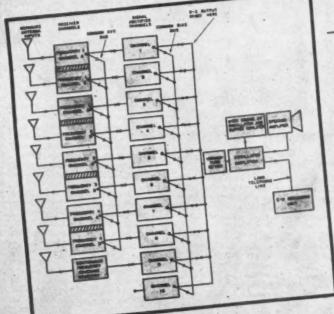
rect the com-pany's recently pany's recently announced multidollar million construction pro-Paul gram. NWA's Thomas, chief plant engi-neer, will head the new organization, known as the plant and equipment - engineering division



Thomas

Thomas will direct construction of the company's new headquarters and chief maintenance base, cost between seven and eight million llars, and million-dollar hangars at Seattle-Tacoma and at either of NWA's eastern terminals—Newark or Idlewild.

## CAA ALASKAN DIVERSITY



URING the war, a dependable and foolproof communications network was required between this country and the Alaskan regions. Because of the particularly had atmospherics and erratic fading and skip conditions, it was found necessary to use diversity-type receivers with a va-

riety of special polar-country features.

The receivers had to provide reliable high-speed c-w circuits comparable to land-line continuity. In addition

NC-2-40C

signed countered the polar atmospheric conditions by simultaneous pickup of c-w signals with eight separate receiving channels having eight sepa-rate antennas as feeders. Four different frequencies were used with two receiving channels per frequency. These frequences ranged from 100 kc

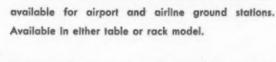
to 20 mc. With all high-spe

continuous frequency coverage type of receiver, and this channel is usually operated as a spare, emerge searching channel. In the versity-operated cha-\* From an article in are amplified COMMUNICATIONS Magazine heterod-ne Jan. 1946

The Diversity-Type Radio Receivers...

National Company developed for the Civil Aeronautics Administration during the war are but one example of how this company put its engineering "know-how" to work to help solve radio communications problems.

A vast amount of this technical knowledge is Incorporated in the new NC-2-40 Series-type receiver, now Available in either table or rack model.







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THE MOST DISTINCTIVE NAME IN RADIO COMMUNICATIONS

### Contested Trans-Gulf Route Awarded to National Airlines

### Gordon's Company Wins Florida Feederline Network

NATIONAL AIRLINES' was granted the warmly-contested trans-Gulf route, providing a short cut between New Orleans and Miami via Tampa, by the Civil Aeronautics Board in a decision in the Florida Case issued last fortnight. The same opinion granted Thomas E. Gordon, doing business as Orlando Airlines, a three-year experimental certificate for a feederline system in north central Florida, marking another move by CAB toward the practical application of its announced policy of experimenting with local air service on a nation-wide scale.

National was selected over Eastern Air Lines and Chicago and Southern Air Lines, also applicants for the cut-off, because operation of the route by it would divert less business from other carriers. The Board stated that Eastern would divert almost one-fifth of National's present system business if it were given the route.

system business if it were given the route.

The grant was accomplished by extending National's present Route 39 from the intermediate point Pensacola via the intermediate point Tampa to the terminal point Miami. Panama City, Fla., and Valdosta, Ga., were named as new intermediate points on Route 39. The opinion pointed out that while a direct New Orleans-Miami route was not specifically awarded to NAL, it could operate directly between those points after complying with non-stop and skip-stop procedures.

Thomas E. Gordon's Orlando Airlines

Thomas E. Gordon's Orlando Airlines was given a three-year experimental certificate to operate a feeder service between the terminal point Orlando, the intermediate points Sanford-De Land, Palatka, and St. Augustine, and the terminal point Jacksonville; between the terminal point Orlando, the intermediate points, Ocala, Gainesville and (a) beyond Gainesville the intermediate points Lake City and Live Oak and the terminal point

charter services in Florida while Southern's main activities have been located in Georgia, Alabama, and North and South Carolina. The Board stated as a general principle that it believed local services should be "entrusted to individuals whose interests are centered in the local area to be served."

An attached concurring and dissenting opinion by CAB member Josh Lee attacked this reasoning and maintained that Southern Airways organization made it better fitted to operate the local service than Gordon.

### American Replies to Show Cause Order

American Airlines has filed a reply, and Aviation Corp. and Consolidated-Vullee Aircraft Corp. have filed motions to dismiss the CAB's show cause order on American's purchase contract for Convair 240s.

American's reply stated flatly that neither AVCO or any of its representatives had attempted to influence in any way its decision to purchase Convair 240s, and denied that AVCO's holdings of American stock had in any way influenced its decision. The reply also stated that in view of the show cause order, and the fact that AVCO is under CAB order to decrease its holdings of American Airlines stock to 4% or less by July 31, American 'does not now propose to enter into any contract with Consolidated Vultee Aircraft Corp. for the purchase of aircraft, or to incur any liability to such corporation with respect to the development or purchase of aircraft, prior to July 31, 1946, unless CAB earlier modifies its show cause order to remove its prohibition against consummating such

a contract."

Meanwhile, plans by Aviation Corp. for

sale of more than 200,000 shares of American Airlines stock through an investment banking group were reported. Since October, AVCO has sold 25,000 shares and now is said to hold 262,538 shares, leaving approximately 214,500 shares to be sold through the banking group. The offering probably will be made as soon as registration and legal formalities can be completed.

### Three Airlines Defend Universal Travel Plan

Supporters of the present form and administration of the Universal Air Travel Plan had their innings during the closing sessions of a hearing on the Civil Aeronautics Board's Investigation of the Plan held before Examiner Charles W. Frederick last fortnight. American Airlines, United Air Lines and Eastern Air Lines vigorously opposed any modification of the present method of selling air transportation on credit and stated that the clearing house proposal offered by the "TWA Group" of carriers (AMERICAN AVIATION, Apr. 1) would destroy all competitive features of the plan.

Charles A. Rheinstrom, American Air-

Charles A. Rheinstrom, American Airlines' vice president of traffic, expressed complete opposition to the clearing house idea, and said if the Board required its installation, American would be forced to set up its own "Universal Travel Plan."

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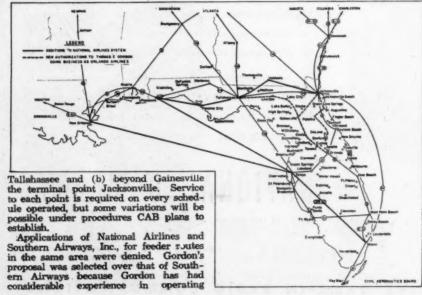
Eastern Air Lines' general traffic manager, Walter Sternberg, testified that the clearing house would eliminate all the competitive features which now encourage airline traffic salesmen to "sell" subscribers travel plans, would be more costly than the present method of administration, and probably would result in a decline in the number of travel plan accounts through elimination of the competitive selling urge which has kept the plan growing.

Harold Crary, United Air Lines' vice president of traffic, declared that the clearing house proposal was hostile to the public interest because it meant the end of the competitive features of the plan. Crary charged that TWA was spearheading the attack on the present plan in order to nullify the volume plan sales already made by other carriers.

### Foreign Permits Issued

To two Cuban airlines, Expreso Aereo Inter-Americano, S. A., and Compania Cubana de Aviacion, the Board last fortnight issued three-year foreign air carrier permits for the Miami-Havana route. Both carriers are designated for the service by the Cuban government and will be authorized to carry mail, passengers and express over a route which CAB says handles more traffic annually than any U. S. route segments except New York-Boston and New York-Washington.

Royal Dutch Air Lines (KLM) was given a foreign air carrier permit for a route between Amsterdam and New York via the United Kingdom, Eire, Newfoundland and the Azores. The permit, issued under the International Air Transportation Agreement to which the Netherlands and the U. S. are both parties, is valid for the life of that agreement. KLM also was given a permit for a Caribbean route linking the rich oil-producing area around Curacao with Miami via Aruba, N. W. I.; Port-au-Prince, Haiti; Kingston, Jamaica; and Havana and Camaguey, Cuba.



### CAB Activities

By Daniel S. Wentz II

THE PAST fortnight brought a flurry of decisions from the Civil Aeronautics Board. In several highly important opinions (described more fully elsewhere in this issue) the Board laid down a specific policy on feeder airlines; certificated two new companies for local service in the Rocky Mountain area and a third in Florida; authorized several new routes and additional intermediate points for existing carriers; and isued a Show Cause order setting tentative mail rates for Northeast Airlines' Routes 27 and 27-F.

Action Soon on Non-Scheduled Policy—The mushroom growth of all types of non-scheduled and charter operations over the entire U. S. underscored the pressing need for a definite policy statement by CAB on the economic regulation of this type of carrier. There were, however, several good indications that the Board was moving forward as rapidly as possible with work on its opinion on the Non-Scheduled Investigation held last year, and it is believed that this opinion will be ready for release in the near future.

First Action on Helicopter Applications—The Board's chief examiner, Francis W. Brown, scheduled a prehearing conference on applications by Southwest Airways Co. and Los Angeles Airways, Inc., proposing mail and passenger service by helicopter in California. Both companies have been pressing for early action on their applications, and the Post Office Department is believed to be interested in an experimental trial of such services. The conference was held Apr. 8, before Examiner Ferdinand D. Moran.

Oral Argument on AA Non-Stops— CAB Vice-Chairman Oswald Ryan presided at an oral argument at which attorneys for American Airlines and Trans-continental & Western Air and Public Counsel argued various aspects of 10 non-stop operations proposed by AA. Fred Fred American's lawyer, told the Board that the non-stops represented improvements American was anxious to make in its transcontinental service, and that their operation would enable the most economic use to be made of the long range four engined transports now going into service. James K. Crimmins, TWA counsel, strongly opposed the non-stops, claiming that they represented a part of a long term program whereby was trying to encroach on TWA's middle transcontinental route. Some observers viewed the argument as more than usually significant. They pointed out that it seemed to call for a policy declaration by CAB on the question of whether the in-herent advantages of long-range highspeed modern aircraft would have to be sacrificed or curtailed to some extent in order to preserve competition, or whether modern flight equipment had outmoded the present concept of airline competi-tion and the route structure on which it

Speeding Up the North Central Case—Rapid handling of the North Central case was indicated in a letter to all parties from Chief Examiner Brown. Although a postponement in brief dates from Apr. 4 to Apr. 22 was granted, Brown's letter

said no further extensions would be granted because the Board desired to have the case submitted for decision as soon as possible. Oral argument will be assigned for early May.

Report on Suspension Case—Examiners William J. Madden and Frank J. Tre-lease, Jr., issued a report on the Clarks-burg-Morgantown, W. Va., service suspension case, concluding that PCA and American stopped serving those points because of inadequate airports, and that TWA never inaugurated service to Morgantown for the same reason. Airports at both places, the report said were at best "submarginal" for DC-3 operations. The examiners suggested that PCA be allowed to serve Elkins, W. Va. as a temporary means of giving West Virginia additional service, pending airport improvements at Clarksburg and Morgantown.

Essair Rate Set—A temporary mall rate of 25 cents per airplane mile for a daily designated mileage of 2,732 miles was set by the Board for the operations of Essair, Inc., over its Route 64 between Houston and Amarillo, Texas. The 25-cent temporary rate is retroactive to Aug. 1. 1945, when Essair began operating, and will be replaced with a final rate efter more operating and expense data have been accumulated.

Limited Pilot Certificates—By amending Part 20 Section .12 of the Civil Air Regulations, the Board provided a method whereby foreign citizens who hold valid pilot's licenses from their native countries may be issued Limited Pilot Certificates for use in the U. S. The CAA will issue the limited tickets upon a showing of pilot time and aeronautical experience by the applicant. Holders of Limited Certificates may not "transport passengers or cargo where a charge is made for such transportation."

UAL—Catalina Agreement—The agreement under which United Air Lines has contracted to operate the Los Angeles-Long Beach-Avalon route of Catalina Air Transport was the subject of a prehearing conference before Examiner James S. Keith last fortnight. Future procedural steps were discussed.

DDL Gets Permit—Det Danske Luftfartselskab A/S (Danish Air Lines—DDL) was issued a foreign air carrier permit authorizing a route between Copenhagen and the alternate U. S. terminals of New York and Chicago via intermediate points in the areas of the United Kingdom, Eire, the Azores, Iceland, Greenland, Newfoundland and Canada. Issued pursuant to existing bilateral commercial aviation agreements between the U. S. and Denmark, the permit is valid as long as a U. S. flag carrier is authorized to operate over a similar route. DDL has been given a 20-year renewable concession by the Royal Denish Government as the operator of Danish transatlantic service will utilize converted B-17 until Douglas DC-4 aircraft, now on order, are delivered. The permit was approved by President Harry S. Truman on Apr. 2.

Modifies Functions—The CAB modified the functions of Public Counsel in new route proceedings and abolished preliminary briefs in an effort to speed up decisions in new route cases. The Board also assigned a member to each of its bureaus and offices to keep the Board informed on the functioning and progress of each unit. Hereafter Public Counsel will continue to participate in hearings, but in briefs and oral arguments will confine himself to issues of law, and not make recommendations on selection of a carrier. Briefs will continue to be filed with the Board by the carriers, but not to trial examiners.

Pan Am Pleads-Pan American Airways carried its plea for extensive modifications of its North Atlantic and European route certificates before the Board itself in an oral argument held last forton the so-called North Atlantic amendment case. American Airline attor-ney Fred M. Glass branded the proposed modifications as an effort by PAA to re-hash the North Atlantic Route Case. Pan American Attorney Henry J. Friendly, however, told the Board that the removal of present restrictions which limit its service to single points in Eire, France, Spain, and Great Britain was needed to give PAA competitive equality with other U. S. and foreign airlines. Borrowing U. S. and foreign airlines. Borrowing Winston Churchill's phrase, Friendly told the Board that an "iron curtain" had the Board that an "iron curtain" had fallen across central Europe, making operations over PAA's route through the Balkans impossible because of the inability to obtain landing rights. He asked for a by-pass route serving points in Italy and Greece along the way.



### CAB Proceedings

(A Summary of Applications Filed, Orders Issued, and Future Actions of the Civil Aeronautics Board.)

#### Orders:

105 Authorizing United Air Lines to operate non-stop between Denver, Colo., and Ogden, Utah, and between Ogden and Sacramento, Calif., on

stop between Denver, Colo., and Ogden, Utah, and between Ogden and Sacramento, Calit., on Route I.

466—Denying the City of Springfield, Mo., permission to intervene in the Cincinnati-New York additional service case. (Docket 221 et al.)

4607—Establishing a temporary mail rate of 25 cents per airplene mile for the operations of Essair, Inc., over its Route 64 between Houston and Amarillo, Texas, the rate to be retroactive to Aug. I., 1945, and to continue in effect until sufficient operations date have accumulated to permit the accurate determination of a final mail rate. (Docket 2002).

4608—Reissuing Continental Air Lines' certificate for Route 29 to clarify the provisions of the certificate and to bring it into conformity with the Board's opinion granting Continental the Hobbs, N. M.-Tulsa extension. (Docket 503 et al.)

4609—Authorizing Chicago and Southern Air Lines to serve Paducah, Ky., beginning Apr. I, through the use of Paducah-MoCracken County Airport.

4510—Permitting Duluth Airlines, Inc., to interevene in the North Central Case. (Docket 415 et al.)

4611—Approving agreement between American Airlines and Pennsylvania-Central Airlines relating to the use of space for the installation of radio equipment at Detroit, Mich., Municipal Airport and Cross Bay Boulsvard, New York. (Agreement CAB Nos. 498 and S15).

4612—Permitting the City of Tulsa, Okla., to intervene in the American Airlines Airlines relating to emergency maintenance service at Jacksonville, Fla. (Agreement CAB Nos. 499).

4618—Approving an agreement between National Airlines and Delte Air Lines relating to emergency maintenance service at Jacksonville, Fla. (Agreement CAB Nos. 499).

4618—Approving an agreement between United Air Lines and Northeast Airlines relating to the lease of shop space at La Guardia Field. (Agreement CAB Nos. 499).

of shop space at La Guardia Field. (Agreement CAB No. 484).

416—Approving an agreement between American Airlines and Transcontinental & Western Air relating to the sharing of utility charges for ramp lighting at Phoenix, Ariz. (Agreement CAB No. 506).

418—Authorizing Western Air Lines, Northwest Airlines, and Pennsylvania-Central Airlines to intervene in the TWA-AAL-UAL consolidated route consolidation case. (Docket 2142 et al.)

419—Permitting American Airlines, Colonial Airlines, Eastern Air. Lines, Northeast Airlines, Transcontinental & Western Air, United Air Lines, the Air Line Pilots Association, International (A. F. of L.), the Brotherhood of Reilway and Steemship Clerks, Freight Handlers, Express and Station Employees, and the United Automobile, Aircraft and Agricultural Implement Workers of America (CIO), to intervene in the PCA-Northeast Merger Case. (Docket 2168).

intervene in the PCA-Northeast Merger Case. (Docket 2168).

4520—Authorizing the Port of New York Authority to intervene in Pan American Airways' U. S. domestic routes case. (Docket 1803).

4521—Permitting the Orleans Airport Commission of the City of New Orleans to intervene in the

foreign air carrier permit proceeding on the application of TACA, S. A., in Docket 774.

4822—Permitting Pan American Airways, under a temporary exemption order to expire Sept. 30, 1946, to conduct certain operations at variance with the specific requirements of its certificates in order to secure optimum equipment utilization and to provide maximum public service. The order continues in effect a series of exemptions granted under previous CAB authorizations. (Docket 2236) 423—Ordering Northeast Airlines to show cause why rates of mail pay for its operations over Routes 27 and 27-F, set by CAB in a Statement of Tentaive Findings and Conclusions, should not be made final. (Dockets 1932 and 1890) 424—Amending National Airlines' certificate for Route 39; granting Thomas E. Gordon, d.b.a. Orlando Airlines, a certificate for feeder routes in Florida; and dismissing and denying other applications in the Floride case. (Docket 489 et al.)

al.)

425—Approving an agreement between American
Airlines and Transcontinental & Western Air relating to the lease of lobby, office and ticket space
in a building on the Municipal Airport, Albany,
N. Y. (Agreement C.A.B. No. 500)

426—Dismissing the application of Keeshin Air
Freight, Inc., (Docket 1910) and Associated Truck
Lines, Inc., (Docket 1267), at the applicants' requests.

Lines, Inc., (Docket 1910) and Associated Frick Lines, Inc., (Docket 1910) at the applicants requests.

1827—Authorizing Pan American-Grace Airways (Panagra) to operate non-stop between Guavaquil, Ecuador, and Chiclayo, Peru, on Route FAM-9.

1828—Denying United Air Lines permission to operate non-stop between Detroit, Mich., and Allentown, Pa., on Route I on the ground that this operation would constitute a substantial departure from the shortest course between those points as outlined in United's certificate for the route.

1829—Ordering withheld from public disclosure Pages 2 to II of the transcript of testimony in an Alaskan proceeding known as the Gambell-Shungnak-Barrow mail service case (Docket 1498 et al.) on the ground that the record contains secret information affecting the national defense.

1830—Issuing to Det Danske Luftfartselskab A/S (Danish Air Lines—DDL) a foreign air carrier permit authorizing service between Copenhagen and New York and Chicago via various intermediate areas. (Docket 2077)

#### Calendar:

April 15—Exhibits due on Pan American Airways'

U. S. domestic routes case. (Docket 1803)

April 15—Deadline for filing additional data for consideration by Examiners Charles J. Frederick and Richard A. Walsh in the Middle Atlantic area case. (Docket 674 et al.)

April 22—Briefs in the North Central case due. (Docket 415 et al.) Postponed from Apr. 4.

April 23—Hearing in the PCA-Northeast merger case. (Docket 2168). Tentative.

April 30—Hearing in the Board's investigation of maximum hours of duty for airline pilots. (Docket 2241). 9:30 a. m., Conference Room "C". Departmental Auditorium.

May 4—Briefs due in the Kansas City-Memphis-Florida case. (Docket 1051 et al.) Postponed from April 8 at the request of Braniff and C&S.

May 15—Rebuttal exhibits due in Pan American Air-

ways' U. S. domestic routes case. (Docket 1803). May 15—Briefs due in the Middle Atlantic Area case. (Docket 674 et al.) May 28—Date for exchange of exihbits in the Boston-New York-Atlanta-New Orleans case. (Docket 730

New York-Arlanta-New Orleans case. (Docket revet al.)
May 20—Briefs due in the Board's investigation of the Universal Air Travel Plan. (Docket 1939).
May 29—Reburtal exhibits due in the Boston-New York-Arlanta-New Orleans case. (Docket 730 et al.)
June 1—Date for exchange of exhibits in the Arizona-New Mexico case. (Docket 730 et al.)
June 3—Hearing on Pan American Airways' application for U. S. domestic routes. (Docket 763)
June 10—Hearing in the Boston-New York-Atlanta-New Orleans case. (Docket 730 et al.) Examiners Ralph L. Wiser and Lawrence J. Kosters.
June 21—Reburtal exhibits due in the Arizona-New Mexico case. (Docket 768 et al.)
July 8—Hearing in the Arizona-New Mexico case. (Docket 968 et al.)

### Applications:

Applications:

Caribbean-Atlantic Airlines, Inc., P. O. 8ox 3214, San Juan, Puerto Rico, for a permanent or temporary certificate authorizing scheduled mail, passenger and property service between San Juan and La Guaira, Venezuela, via Aruba and Curacao, N. W. I. (Docket 2247)

Caribbean-Atlantic Airlines, Inc., P. O. 8ox 3214, San Juan, Puerto Rico, for a permanent or temporary certificate authorizing scheduled mail, passenger and property service between San Juan and Kingston, Jamaica via Ciudad Trujillo, D. R., and Port-au-Prince, Haifi. (Docket 2248)

Caribbean-Atlantic Airlines, Inc., P. O. 8ox 3214, San Juan, Puerto Rico, for a permanent or temporary certificate authorizing scheduled mail, passenger and property service between San Juan and New York via Washington. (Docket 2248)

Caribbean-Atlantic Airlines, Inc., P. O. 8ox 3214, San Juan, Puerto Rico, for a permanent or temporary certificate authorizing scheduled mail, passenger and property service between Christiansted, St. Croix, V. I., and Curacao, N.W.I., via various intermediate points. (Docket 2246)

Slick Airways, Inc., San Antonio, Texas, for a certificate authorizing scheduled property service between points in the Chicago area; between points in the Chicago-area; between points in the Chicago-area; between points in California and points in the Boston-New York-Washington area; between points in Exas and points in the Roston-New York-Washington area; between points in Texas and california, and between points in California and points in the Soston-New York-Washington area; between points in Texas and california, and between points in Texas and points in the Soston-New York-Washington area; between points in Texas and points in the Soston-New York-Washington area; between points in Texas and points in the Soston-New York-Washington area; between points in Texas and points in the Soston-New York-Washington area; between points in Texas and california, and between points in Faxas and points in the Soston-New York-Washington area; between points in

### **Promise of Better Operation Argued in TWA Transfer Case**

TWA and Arizona Airways officials told a CAB examiner that transfer of TWA's Route 38 certificate to the Arizona company would permit better op-eration of the route, which they described as a logical operation for a feeder carrier, rather than a transcontinental operator.

TWA seeks to transfer the certificate to Arizona Airways in exchange for stock in the latter company. No hard assets are involved in the transaction. United Air Lines opposed the deal on grounds that TWA was attempting to set up an affiliated company which would require additional mail pay to operate the route. Western Air Lines also opposed the transaction.

### Mumper Resigns Directorship

Norris Mumper has resigned as director of aviation, Office of Inter-American Affairs, a post he has held for the past four years. With Mumper's departure, work of the aviation division was terminated.

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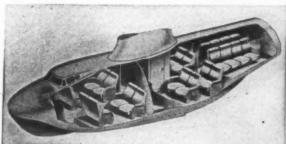
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### Municipalities Stand By as Army Takes Field Equipment

### Trucks, Tractors and Others Are 'Short Supply' Items

M UNICIPALITIES UNICIPALITIES were expressing concern last fortnight over removal by the Army of automotive equipment on surplus airports. The cities claimed that they had been led to believe that this equipment would be left under surplus

disposal procedures. War Assets Adr

War Assets Administration has told cities it is powerless to act as long as the War Department declares the equipment war Department declares the equipment "short supply" and insists on its shipment to storage depots. Lt. Gen. Carl A. Spaatz, commanding the AAF, has promised an investigation. The equipment includes trucks, grass cutting, snow removal, runway repair machinery and treaters. tractors.

Also causing some concern was the new building limitation order issued by the Civilian Production Administrator and National Housing Expeditor. It states that up to \$15,000 may be spent on a particular project for structures for a commercial airport or carrier terminal, but larger construction must be approved.

Meantime, WAA announced that large quantities of surplus steel aircraft landing mats were being offered for sale at two regional offices. The material is suitable for small landing strips and to pro-

able for small landing strips and to pro-

vide traction on ramps.

These were other airport developments:

The Hilton Hotel chain announced that it would construct a helicopter landing deck on the Hilton Hotel, Long Beach, Calif., following

would construct a helicopter landing deck on the Hilton Hotel, Long Beach, Calif., following a meeting of Chicago hotel operators in which the possibilities of constructing such landing areas was discussed. They would make for quick shuttle service between the Chicago airport and downtown.

Title to Orchard Place (Douglas) airport has been vested with the City of Chicago, which will use it for overflow traffic from the present municipal airport. It was the first government-owned airport to be transferred without cost to a local government unit.

A New York traffic committee got together last week to discuss air traffic congestion in the New York metropolitan area. Airline schedules have been disrupted as far away as Richmond and Cleveland because of the bottle-necks caused by the influx of commercial, private and military planes. Represented on the committee were ATA, CAA, Air Line Pilots Association, and representatives of the New York airports.

Southwestern State Aeronautical Officials, whose members are advancing a 10-year development plan for airports, air marking and other aviation projects in the CAA Fourth Region, projected plans for 71 new airports and 12 new seaplane bases.

Pennsylvania Equity Court will hear the complaint of Malvern, Pa., residents, who filed a nuisance complaint against a group of veterans operating an airport in the city. Work on at least three Pennsylvania private fields is being held up awaiting a decision in the case.

 Wayne County (Mich.) and the Detroit
 Metropolitan Aviation Planning Authority have Metropolitan Aviation Planning Authority have asked War Assets Administration for additional time in which to exercise an option for purchase or lease of the Willow Run Airport pending outcome of a political squabble over the present Wayne County Airport. The airlines favor Willow Run.

• Reno Sky Ranch (Nev.) has offered to extend its facilities for either temporary or permanent housing of a National Guard fighter

squadron said to have been allocated to the state of Nevada. Reno, Carson City and Boulder City are under consideration as Guard

• Grays Harbor County (Wash.) commissioners plan to employ an airport manager at Moon Island airport, Hoquiam. Wash., to stimu-

Moon Island airport, Hoquiam. Wash., to stimulate charter, taxi and private aviation in southwest Washington. The airport recently was released by the Navy, has a 5000-foot runway, taxiways, lights and aprons.

• Glenn County, Calif., may be recipient of Crocker Field, southwest of Orland. It was used as an auxiliary landing facility in connection with Chico Army airfield, was declared surplus by the Army.

Los Angeles county board of supervisors has

• Los Angeles county board of supervisors has

 Los Angeles county board of supervisors has issued a permit to Dr. C. M. Brakensiek and F. C. Delk to operate a private airport near Norwalk. in the Los Angeles area.
 Snohomish County (Wash.) will operate Paine Field. near Everett, recently declared surplus by the Army. George Forbes, former Navy pilot, has been named field manager.
 CAA lifted war-time restrictions on "airport designation" with the announcement that air-designation" with the announcement that airdesignation" with the announcement that airports no longer need be designated under Sec. 43.8 of the Civil Air Regulations.

### Reading and Army Act Quickly, **Entice Nuss Back to Airport**

Following a flood of protests to the Reading City Council concerning condi-tions which prompted Melvin H. Nuss to resign as manager of Reading Municipal airport, the council voted to take steps to establish an airport authority, guaranteed Nuss the cooperation which he had sought and then induced him to withdraw his resignation, which has been done.

Announcement of Nuss' resignation was followed by many reverberations and brought prompt action from many quar-ters. It resulted in the Army promptly releasing control of the field and turning over all operational facilities to the city— a move which Nuss had pushed for many months.

Creation of the Authority will give Manager Nuss a free hand in the opera-tion of the field as it will eliminate many of the restrictions caused by operating under third class city laws.

### Officials Will Consider **Jurisdiction of States**

The National Association of State Aviation Officials, during a three-day meeting to be held at the Hotel Statler in Washington Apr. 28, 29, 30, will meet with a committee of the Civil Aeronautics Board and Civil Aeronautics Administration to consider a plan whereby some of the responsibilities for law enforcement and accident investigations may be delegated

to properly trained state personnel.

This meeting with CAA and CAB representatives is the result of suggestions made to the NASAO membership at St. Louis last November by Oswald Ryan, vice chairman of CAB. The meeting is slated for Apr. 29. On Apr. 30, NASAO slated for Apr. 29. On Apr. 30, NASAO will carefully study the revised State Aeronautics Department Act with representatives of CAB, CAA and the Federal-State Regulations Division of the Department of Justice in the hope of reaching a final agreement on a uniform act. On Apr. 28, the Executive Committee of NASAO will consider association problems. The legislative committees of NASAO will attend the conferences. of NASAO will attend the conferences.

### Oregon Names Airport Engineer

The Oregon State Board of Aeronautics has named William C. Hill as airport engineer with assignment to modernize the state's airport plan for participation in the Federal Airport construction program. Hill, a World War II Navy civil engineer, expects to have a definite pro-gram outlined for presentation to the Oregon legislature next spring.

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### 5 of 13 State Legislatures Still in Session; Vital Aviation Proposals Under Consideration

Five of the 13 state legislatures which convened this year were still in session as this was written and some important aviation legislation was under considera-

tion in these states.

Among those that had adjourned was New York which followed closely upon passage of the highly controversial Hal-pern bill authorizing the creation of a York City Airport Authority. bill was strenuously opposed by the 13 airlines which serve the New York area. The bill passed the Senate by a 39 to 14 vote, which was just one more vote than was necessary under the two-thirds mar-Governor Dewey has signed the bill.

The airlines, in their opposition to the bill, expressed the fear that responsibilities

and obligations accepted by the city at the time Idlewild Airport space was leased by the carriers might be rejected by the Authority. Mayor O'Dwyer issued a statement shortly before the vote was taken that the protests of the airlines were without the slightest foundation. Other states which had adjourned were:

Georgia, Idaho, Kentucky, Michigan, South

Carolina, Virginia and West Virginia. Still in session at this writing were: Massachusetts, Mississippi, Missouri, New Jer-sey and Rhode Island.

Bills creating state aviation agencies were passed by Kentucky and Virginia. Airport enabling legislation, providing for a wide range of authority, was passed by Michigan, New York, South Carolina and Virginia. Specific airport zoning acts were passed by Georgia and Kentucky. A bill providing for state regulation of air car-riers was enacted into law in Kentucky. A somewhat similar bill was passed by the House in West Virginia.

Gasoline tax laws affecting aviation were passed in Kentucky and Virginia. In addition, Idaho passed an air transportation act, South Carolina a liability and transportation act and Virginia a law providing for the recordation of the title of aircraft. Kentucky also enacted a law with reference to the insurance of air-

craft.

A bill in the New York legislature requiring air carriers to provide parachutes for each passenger died in one of the legislative committees.

### Fairchild 'Husky' Design Work Nears Completion

### Utility Plane is Intended For Canadian Operations

FAIRCHILD Aircraft Ltd., Longueuil, Quebec, is nearing completion of design work on its new F-11 "Husky," a single-engine high-wing general utility airplane, and the prototype is expected to fly about the middle of May, 1946.

Last year, the Canadian firm made an

Last year, the Canadian firm made an extensive survey of the Canadian market, contacting a large number of bush operators, and the details of the Husky were laid down to meet the requirements of the great majority of these operators.

of the great majority of these operators. The Husky can be equipped with wheels, skis or floats. As a landplane its maximum gross weight will be 6.050 lbs., with 2.450-lb. payload; as a seaplane gross weight will be 6.300 lbs. with 2.400-lbs. payload. Wing span is 54 ft. nine inches, with wing area of 355 sq. ft. Maximum height of the fuselage is six ft. six inches; maximum width, five ft. two inches. Inside cabin dimensions are: clear floor width (over constant section), four ft one inch; floor length, 13 ft.; height from floor to ceiling (on axis of symmetry), five ft. one and a half inches; height from floor to ceiling (between spars), four ft. nine inches. Construction is metal, with combination metal-fabric rudder, elevators, allerons and flaps.

Price of the Husky will vary, according

Price of the Husky will vary, according to equipment required. With a used engine, which most operators are expected to use, the plane will cost about \$33,000, according to the company. With a new engine and propeller, price would be \$36,505, flyaway Longueuil, sales taxes and delivery costs (if incurred), extra. With a reconditioned propeller hub and a reconditioned engine having 1,800 hrs. or more operation prior to reconditioning, price would be \$29,745. These prices are for the standard floats lens.

frice would be \$23,43. These prices are for the standard floatplane.

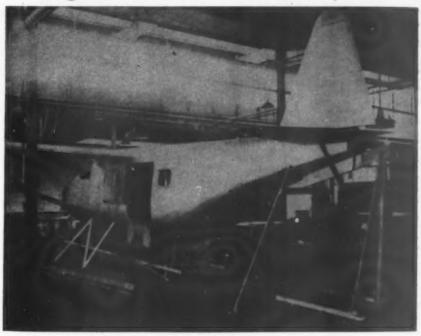
As a landplane, the Husky will have a fixed tricycle leading gear, while as a seaplane it will be equipped with floats manufactured by Edo Aircraft Corp., College Point, N. Y.

The plane will use either the normally

The plane will use either the normally aspirated (T1B3) or the supercharged (SB3) version of the Pratt & Whitney Wasp Junior engine. The former is rated at 450-hp at 2,300 rpm at sea level, and the latter at 400-hp at 2,200 rpm at 3,000 ft. The entire power plant installation, including all cowlings and the complete oil system, is removable at the firewall as a unit and without any necessity for breaking oil lines. This feature is said to allow complete power plant change

in less than one hour.

An outstanding feature of the Husky is the fact that it is equipped with five main doors. Pilot and co-pilot doors are located on port and starboard sides of the flight compartment. Each door has a large window, which slides aft. There are cargo doors on each side of the fuse-lage, giving openings 40 inches wide by 48 inches high. Each of these doors, frames of which are flush with the cabin floor, is divided horizontally into two sections. Lower section is hinged along the floor line and opens outwards and downwards until it reaches a stop in the bot-



Mockup of Fairchild 'Husky'

tom of the fuselage. It is fitted with a folding two-step ladder. The lower section cannot be opened when the upper section is closed. The upper section is hinged vertically and opens forward through 180 degrees to give a clear opening for loading.

A large trapezoidal-shaped rear loading door, 40 inches wide at its front end, 28½ inches wide at the rear end and 40 inches long, is provided just aft of the cabin floor. This door is in the bottom of the rear fuselage which slopes upward at an angle of about 30 degrees so that it is a combined floor hatch and rear door. Split into two sections and hinged along the center, it opens on sliding rails into the tail of the fuselage. It can be used for loading long bulky articles.

Passenger capacity of the Husky varies. Assuming only one pilot, a seat can be placed in the flight compartment, and the cabin will hold eight bush-type seats. These seats, located along the sides of the cabin, are of metal construction and can be folded up against the wall when not in use. If individual passenger seats are used, six such seats can be arranged in pairs, and a seventh can be placed beside one of the side carso doors.

m pairs, and a sevenin can be placed beside one of the side cargo doors.

Maximum speed of the Husky (as a seaplane with a TIB3 engine) is 145.5 mph at sea level, at 6.300 lbs. gross. At 5.000 ft., with an SB3 engine, it is 144.7 mph. As a landplane (6.050 lbs. gross) maximum speeds are 155.3 and 157.3 mph, respectively, under the same conditions. Seaplane maximum cruising speed (at 4.500 ft. with TIB3 engine) is 129.7 mph and at 8.000 ft. with SB3 is 133 mph. Under the same conditions, landplane

maximum cruising is 142 and 146 mph, respectively. Economical seaplane cruising speed (66% power, 2.000 ft., T1B3) is 123.7 mph. With 66% power, 5.000 ft., SB3, it is 122.8 mph. Under the same conditions, landplane economical cruising speed is 134.5 and 134.2 mph. Initial rate of climb, sea level, is 800 ft./min. for a seaplane with a T1B3; 728 ft. with an SB3. Landplane is 945 and 855 ft./min., respectively. Seaplane service celling at 6.300 lbs. with T1B3 is 16.150 ft.; with an SB3, 15.450. Landplane is 16.400 and 17,900 ft., respectively.

an SB3, 13.430. Landplane is 10,400 end 21,500 ft., respectively.

At full gross weight, with 30-degree flaps, the seaplane will take off in 2.000 ft. from glassy water with zero wind. Take-off time is 37 seconds. Stalling speed, seaplane with TIB3, is 58 mph at full gross; landplane, 57 mph.

After making necessary assumptions (life of airframe 14 years because obsolescence is not a factor in the north country, 7,000-hr. life for new engine, 30c per Imperial gallon fuel cost, etc.), Fairchild figures direct flying costs of the standard freighter version on floats as follows: airframe maintenance and overhaul, \$2 per hr.; engine maintenance and overhaul, \$2; fuel, \$6.80; oil, 54c, and crew (one pilot), \$5. a total of \$16.34 per hr. Total fixed charges for the 14-year life of the airplane are \$124.241 (depreciation, spares, insurance and interest on investment). If the plane is operated 500 hrs. a year, these fixed charges total \$17.75 per hr.

fixed charges total \$1.7.5 per hr.

Fairchild estimates that on a 150-mile trip, an operator could carry 1,661 lbs. outbound and 1.844 lbs. inbound, or an average of 1.750 lbs. Time each way would be 1.55 hrs. Assuming that the operator was forced to make the return trip empty, and assuming a rate of 1/20c per pound-mile, his profit would be \$40.25 revenue less \$34 expenses, or \$8.25 per hr. On the round trip this would be \$19.38 profit, less indirect expenses.

### 'Speedpak' Gives Connie Four-Ton Payload Boost

### **Attachment Cuts Speed** 10 MPH, Tests Indicate

L OCKHEED Constellations shortly will have their mail and cargo payloads boosted by four tons a trip by the use of a detachable and portable "Speedpak" that can be attached to the bottom of the fuselage. Preliminary tests show that the 300-mile-an-hour speed of the Constellation is cut by only 10 miles with the loaded Speedpak installed and that the flight characteristics of the plane are not impaired.

impaired.

Lockheed President Robert E. Gross says use of the Speedpak, in effect, gives the airline operators two planes—without the Speedpak, a high-speed transport for long-range non-stop operations, or with the Speedpak, a heavy-duty, high payload transport with additional mail and cargo space to take care of otherwise unused waight-carrying capacity, for short-haul weight-carrying capacity for short-haul

The device is an all-metal, streamlined boat-shaped container 33 feet long, seven boat-shaped container 33 feet long, seven feet wide and three feet deep shaped to fit snugly to the underside of the fuselage. A rubber sealing strip around the top prevents rain/and dirt from entering the interior while the plane is in flight. The Speedpak is on wheels and is raised into position or lowered to the ground in about one minute by an electrically-driven cable drum built into the container. Power drum built into the container. Power for the mechanism can be supplied either externally or from the plane's electrical system. The Speedpak also has built-in air conditioning and fire extinguishing units.

Development of the Speedpak began when Constellation performance tests demonstrated the ability of the plane to

demonstrated the ability of the plane to maintain its safety factor and speed at gross weights considerably exceeding those for which it was designed.

"This meant," Gross said, "that we could add more payload. Our problem was in finding space for it. The Constellation's lines left no unused space for either passengers or cargo in the standard fuselage. Throughout the war we had seen the Lockheed P-38 fighter take on external fittings for which it was never seen the Lockheed P-38 lighter take on external fittings for which it was never intended with no bad aerodynamical effects. These included 1,000-pound bombs, 150-gallon fuel tanks, 14 rockets, and large cargo containers. We decided to try it on the Constellation."

The first units of Speedbak will be de-

The first units of Speedpak will be de-livered to Transcontinental and Western

### CAA, Air Force and Navy Test Landing Equipment

CAA, AAF and Navy Bureau of Aeronautics are participating in a joint experi-mental and research program to test landing aids under adverse weather condi-tions at the Naval air station, Arcata, Calif.

The experiments include development of automatically-controlled fog dispersal equipment and the accumulation of information on coordinated use of radio aids, high intensity lights, and fog dispersal equipment. Experiments will begin May 1.

### **Boeing Experiments With** 'Sandwich-Type' Materials

Boeing Aircraft Co. is conducting extensive experiments in the use of "sandwich-type" aircraft construction materials made up of thin sheets of a strong but light alloy interlaced with medium density material, such as balsa wood, foamed hard rubber, foamed magnesium, glass fibre, plywood, cork, etc. The experiments are directed toward the development of a strong aircraft construction material light enough to permit the building of plane fuselages and wings without bulkheads, longerons or stiffeners.

Wellwood E. Beall, Boeing engineering and sales vice president, points out that present plane construction materials will be wholly inadequate to offset the high pressures, temperatures and abrupt ac celerations and decelerations that will come with future high-speed planes.

### Wright Demonstrates New Power Units for DC-4s

WRIGHT Aeronautical Corp. has which the transfer of a demonstrator C-54 with the new 9HD Cyclone power plant specially designed for the Douglas DC-4 Skymaster line and is setting up a tour of the country with the ship to substantiate the company's claims for improved performance with the engine with flight demonstrations at airline bases.

Fred Chamberlain, enginering test pilot for Wright, who went to Los Angeles from Paterson, N. J., to com-



plete the flight tests, will make Dallas, headquarters of Braniff, the first stop on this itinerary.

Demonstrating the plane at Grand Central Airport, where the new Wright-Rohr power units were in-stalled, Chamberlain took off at 2,500

feet per minute for the first 60 seconds and "leveled out" to 2,200 feet per minute for two minutes to take the craft to just under 7,000 feet. Aloft, he feathered the number one propeller and demonstrated three-engine power climb.

The installation of the Wright 9HD's in the C-54 marks the first time an engine manufacturer has designed its own power unit. Previously this has been the province of the airframe own power umit. Freviously this has been the province of the airframe manufacturer. As a result the Wright company had the opportunity to incorporate into the unit its years of cowling study. The separate power units are identical and interchangeable across the airplane, allowing for re-moval of any one together with installation of a new one between flights so that the airplane need not be out of service for engine overhaul.

The power unit was designed by Hugh Rush, assistant chief engineer of Rohr Aircraft Corp. of Chula Vista, Calif. together with Robert Brown, Wright project engineer, and Ben Also-brook, Wright installation field engi-

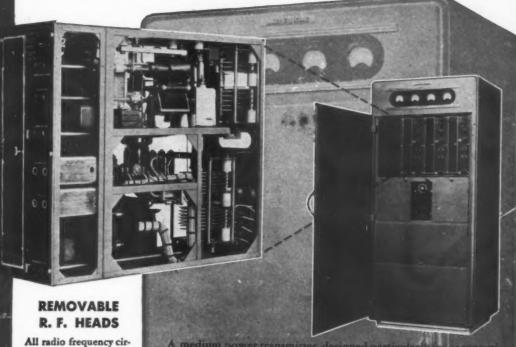
Developing 1425 hp. at take-off, the Wright 9HD's add 20 to 25 miles an hour to the cruising speed of the Sky-master and 1,100 to 1,200 pounds to the payload. Cruising speed, according to Wright, is 250 mph at 60% of power. Wright company also claims a reduction in direct operating costs of eight per cent, the equivalent of \$20,000 per airplane annually under typical airline operating conditions.





Lockheed Speedpak (left) attached to Constellation in flight and being inspected on ground.

## Wilcox Type 99A Transmitter



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### Teleran Combines Human, Automatic Elements

### **Engineers Claim Many Advantages for System**

By SYDNEY CARTER

WHEN IT COMES to proposals for an ultimate solution to the air navigation traffic control problem, the most-discussed system yet put forward is Teleran, a combination of search radar, radar transponders and television now being developed by Radio Corporation of America.

Teleran, according to RCA engineers, is admittedly not a solution to immediate airline problems—its practical application on a nation—or world-wide basis is at eight to 10 years off; least eight to 10 years on; but the methods proposed are not radical departures from methods already available, elements of the system are all within the realm of accomplished fact, and introduction of the system could be accomplished gradually as conditions warrant without conflict to available facilities.

without conflict to existing facilities. Among the many advantages claimed for Teleran by RCA are: pilot participation with the ground controller in handling traffic problems, flexibility in choice of paths to be flown, use of the same apparatus for all operations including taxi control, and a potentially great reduction in voice communications through the presentation of increased amounts of information in graphic form.

Unlike most other proposals for the ultimate solution of the all weather flying problem, Teleran does not attempt to eliminate the human element, but instead relies on supplying both the pilot and ground controller with the informa-tion they need while leaving the former in complete control of his aircraft and the latter in complete control of the over-all situation. Yet Teleran can with slight

all eituation. Yet Teleran can with slight modification be adapted to supply signals for automatic lending, and perhaps, certain other automatic flight procedures. In its simplest form, Teleran employs a ground search radar which surveys the airspace of interest and displays the information obtained on a cathode ray tube. A map of the area is superposed over the presentation by optical or electrical means, and the combination picture is televised to the aircraft, where it is picked up by an airborne television is picked up by an airborne television receiver, and the pilot sees his craft as a pip of light moving across a map.

In addition to the sirborne television

set, each aircraft carries a transponder which is coded to give altitude. A discriminator is included in the ground equipment so that the picture transmitted to each sircraft includes only those other aircraft in the some general altitude layer as the one receiving the presentation,

The overall Teleran system contemplates high powered search radar sets spaced at approximately 50-mile intervals along all major airways and so set up that they may be unattended with the pictures being transmitted automatically; pictures being transmitted automatically; lower powered sets at each major airport to observe and control aircraft scheduled to land at that airport; and high precision sector search sets at all instrument airports to supply the information for instrument landing, together with suitable television transmitters for sending the information aloft. Additional ground facilities will include a posting board and other conveniences for the ground controller, relay radar sets, etc.

For en route navigation the pilot is supplied pictorially with whatever infor-mation is needed in his particular situ-ation, and that information alone. For example, if he is flying at between 10,000shown are the principal towns, cities and airports. Additionally, however, there is displayed on his map such information as airways, frequency channels to be used, estimated wind direction and velocity at that altitude, barometric corrections, etc. Against this background he sees his own aircraft and all other aircraft at a colli-sion altitude together with the direction they are flying as indicated by a trail persisting on the cathode ray tube phosphor material.

The pip representing the pilot's own craft is indicated at all times by a radial line passing through it automatically activated by the transponder. Heading of the pilot's own aircraft is shown by parailel lines ruled on a transparent disk placed in front of the Teleran indicator and rotated by a servo to the flux gate compass or directional gyro.

Other information which can be supplied include such data as holding or passing their purpose, temporary off-airway courses. courses which are drawn on the map by the controller and erased when they have served weather maps and information, etc.

As the aircraft approaches an airport to land, all information relative to the approach

As the aircraft approaches an airport to land, all information relative to the approach pattern would likewise be given pictorially together with such details as wind direction (indicated by an arrow), location of high buildings, power lines, hills and other obstructions, an altimeter check, elevation of the airport, radio altimeter check point and proper altitude readings for starting on the gilde path. In addition the traffic controller could send special mescages to individual aircraft by merely pointing to the proper pip on the indicator, and then transmitting the message either verbally or graphically.

For an actual instrument landing still another type of presentation is used continually

other type of presentation is used continually showing the pilot the location of the airport.

#### Fourth of a Series

This is the fourth of a series of articles dealing with all-weather pro-posals. Another installment will appear in a forthcoming issue of AMERICAN AVIATION.

his position, his heading and his pitch attitude. A vertical line representing an extension of the runway to be landed on shows if the air-craft is to the right or left of the proper glide path, and mileage marks along the line indicate distance to the airport. A horizontal line shows if the aircraft is on the proper glide path, passing through the plp as long as it is at the correct altitude, but appearing below the pip if the aircraft is too high or above if it is too low. As long as the aircraft remains at the proper altitude, this line moves toward the airport with the pip automatically.

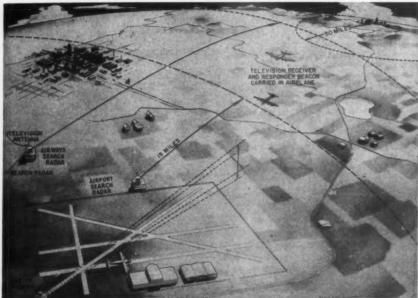
toward the airport with the pip automatically. The type of presentation is similar to the common cross pointer, but in addition provides distance and the exact position of all other aircraft making landing approaches.

From a traffic control standpoint, according to RCA, Teleran offers many advantages. For example, traffic along an airway can be controlled by assigning a definite location to each aircraft at every instant, and marking these locations on moving tapes which are supertrolled by assigning a definite location to each aircraft at every instant, and marking these locations on moving tapes which are superposed on the television pictures transmitted aloft. Alternatively methods similar to those employed in animated motion picture production could be used to cause symbols assigned to individual alternative process. signed to individual aircraft to move at appro-priate rates and in appropriate directions. Still another claimed advantage is that any

number of parallel courses can be established and flown in safety since the positions of all aircraft can be monitored both in the air and on the ground. This should prove of value not only when weather conditions restrict safe flight altitudes; but further for establishing safe approach paths into several airports lo-

safe approach paths into several airports lo-cated in the same area.

Only three main controls—station selector, channel selector and brightness control—are needed normally to operate the air borne equipment. Focus, centering, synchronization and similar controls are mounted on a covered panel at the bottom of the receiver and need be set only at long intervals, and then only during preflight check.



## UAL'S DC-6 Loading System Uses Interchangeable Baskets

### Eight Cargo Containers Are Pre-Loaded, Move On Rail

UNITED AIR Lines has included in its design specifications for the DC-6 a mono-rail system employing eight interchangeable pre-loaded cargo containers in the two main belly pits of the aircraft. The eight baskets will hold 4500 lbs, of cargo and can be loaded in less than five minutes.

The mono-rail basket system was developed in experiments with full-scale wooden mockups of the aircraft in United's shops in Chicago. The baskets are constructed of aluminum alloy tubing with sides covered with wire netting. Each

weighs approximately 20 lbs.

The entire installation of eight baskets in the DC-6 weighs 225 lbs. empty. They are designed to fit the contour of the cargo pit and are easily handled on the ground. The round bottom enables the cargo handler to rock the basket onto cargo tubs when loaded, and they can be spun around and slid along the floor on steel skid strips.

The two light-weight trolleys on which the basket rolls along the overhead monorail are designed to enable the container to travel over a fairly sharp radius up or down or around corners.

Location and size of cargo doors on United's DC-6s will enable the cargo containers to move directly off the cross-rail inside the pit to an outside mono-rail, the latter being equipped with a quickly-detachable spring lock for connecting with the cross-rail inside the pit.

detachable spring lock for connecting with the cross rail inside the pit.

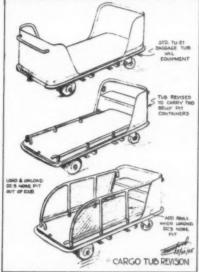
In addition to the portable stand equipped with a mono-rail, the baskets can be handled on the outside by a hand-operated barvel lift, a high-lift truck, or the fork lift and mono-rail system. For intermediate stations, a special type boom has been designed which would lower or raise the baskets.

Overhead cross-rails within the aircraft, designed to move on roller bearings along two longitudinal rails, hold the cargo baskets in suspension as they are moved back into the pit. A light cable will be used to hold the baskets in place when loading and to lock them in place when the plane is in flight.

Thus United has tackled and apparently solved an eight-fold problem on ground handling and loading of cargo. The problem entails these steps: transportation across the field, raising and lowering the load to door level, passing through the door, 90-degree turn inside fuselage, travel forward, another 90-degree turn, lateral movement, and final positioning and fastening.

Other of United's developments to speed up ground handling of cargo include body lift trucks, mounted on three-ton chassis. Normal body height on this truck is four feet, and it can be extended to 14 feet, thus accommodating any airplane door height. The truck serves as both pickup and loading facility.

United has found the combination of the hydraulic fork lift and cargo tubs, which measure three by eight feet, most satisfactory for handling both mail and express. The lift acts as both tractor



and hoist for the tubs. Modifications in the lift are now going forward to provide it with cleat type tread to increase its mobility in snow and soft ground.

United also is working on a combination truck and belt loader. The truck body is the standard walk-in cab-overengine type of the three-ton variety. A



Photo Shows United's DC-6 Mockup for Testing Cargo Baskets

working platform is provided on the roof of the truck, whose height is satisfactory for both DC-3 and DC-6 operations.

The belt loader is located on the right hand side inside the truck. The belt is operated by a hydraulic motor which drives the belt in speeds ranging from zero to 75 feet per minute. The belt can be extended above the truck body to any desired height. The fork lift can be used with this equipment by loading tubs or baskets directly to the working platform.

### NACA Officials Discuss Jet, Turbine Developments

Talks on latest developments in jet and turbine aircraft propulsion by research officials of the National Advisory Committee for Aeronautics highlighted the two-day National Aircraft Propulsion Meeting of the Institute of Aeronautical Sciences at Cleveland.

Sciences at Cleveland.

New officers of the Cleveland section of the Institute of Aeronautical Sciences are Robent J. Minshall, president of Pesco Products Co., chairman; George H. Scragg, director of advertising and sales promotion of White Motor Co., vice chairman; and R. C. Gazley, assistant chief engineer and quality control manager of Cleveland Pneumatic Tool Co., secretary-treasurer.

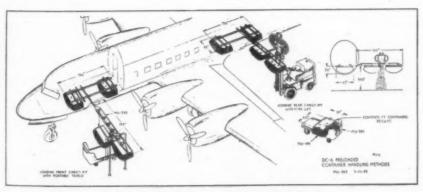
### Patent on New Flying Wing Assigned to Briggs Mfg. Co.

A patent (No. 2,397,526) on a new type of flying wing, issued to Howard Bonbright, of Grosse Pointe, Mich., is listed in the U. S. Patent Office Official Gazette as having been assigned to Briggs Manufacturing Co., airframe parts and assemblies manufacturers of Detroit.

A second patent (No. 2,397,489) issued

A second patent (No. 2,397,489) issued to Edward S. Jenkins, Snyder, and Allen F. Donovan of Kenmore, N. Y., for an invention of an automatic pitch control for helicopter blades has been assigned

to Curtiss-Wright Corp.
General Motors is the assignee for a patent (No. 2,397,632) issued to Joseph Stuart, III, of Dayton, Ohio, for a radical type of aircraft employing both the helicopter and pusher oropeller principles for both vertical and horizontal flight.



Drawing Shows Layout of DC-6 Container System

### 'Wheelair III-A' Revealed as a 4-Place Pusher

### All-Metal Craft Planned By Tacoma, Wash., Firm

R ELEASE OF preliminary specifications and description of a new 4-place, pusher-type, all-metal monoplane, known as the "Wheelair 111-A," has been made by Puget Pacific Planes, Inc., of Tacoma, Wash.

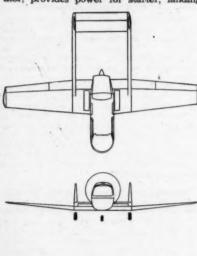
Having a maximum speed of 135 mph, a cruising speed of 120 mph (75% power), and a landing speed of 55 mph, this design features roomy, automobile-type, fully upholstered seats, with provision for pilot, three passengers and 160 pounds of baggage.

baggage.

The cabin, which is 52 inches wide, outside dimensions, offers leg and head room exceeding that of many 1946 automobiles. Adjustable front seats allow a change of position for pilot and passengers, to take advantage of the 600-mile normal cruising range. Both front and rear "coach type" seats are divided so that each can fold forward independently of the other. The front seats hinge to allow easy access to the rear passenger seats. The rear seats fold forward to gain access, even in flight, to the roomy luggage compartment.

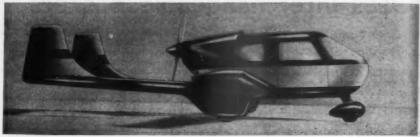
A Lycoming GO-290-AP four-cylinder aircooled engine is to be used as standard equipment. A geared, horizontally-opposed engine, it developes 170 hp for takeoff, and has a normal rating of 160 hp. Gross weight of the Wheelair 111-A is 2505 pounds; weight empty is 1350 pounds. Wing loading is 13.9 pounds per square foot.

A battery, with engine-driven generator, provides power for starter, landing



Three-View of Wheelair III-A

and navigation lights, and radio equipment. Fuel tanks are located in the wing stubs away from the engine with a 50 gallon total capacity. The oil tank and filler cap are part of the engine, and are reached through the hinged service panels which cover the engine compartment.



Wheelair Model III-A

The Wheelair 111-A has an over-all length of 26.62 feet, and a wing span of 37 feet. Over-all height is 7.12 feet. The new airplane's name is derived from Puget Pacific Planes' chief engineer, Donald J. Wheeler, former design engineer for Boeing Aircraft Co. Other officers of Puget Pacific Planes, Inc., include James A. Edman, president, William C. Chafin, vice-president, and Roland G. Enos, secretary-treasurer.

### CAA Resumes Flight Plan Service

Civil Aeronautics Administration on April 5 resumed the prewar practice of accepting flight plans from any airmen who wish to file them. Filing a flight plan assures the pilot that if he should fail to arrive on schedule, search and rescue procedure will be initiated promptly. Pilots must report completion of a flight plan if one is filed under threat of a \$25 fine.

### Republic Orders Radio Sets

Hallicrafters Co., Chicago, producers of high frequency radio equipment, announces receipt from Republic Corp. of the largest postwar contract let to a radio concern in the personal aircraft field. Hallicrafters will build all radio-telephones for Republic's "Seabees." Two-way radio will be standard equipment in the craft.

#### Forecasts Transport Limitations

Total gross weight of many individual transport aircraft will remain under 150,000 lbs. for the next five years, it is predicted by Harold R. Harris, vice president and general manager of American Overseas Airlines. Speaking before a joint meeting of the Institute of the Aeronautical Sciences and the Engineering Society of Detroit, Harris said the average cruising speed of the commercial air transport will not exceed 350 mph. "In fact, it is unlikely that cruising speeds much above 300 mph will be commercially utilized in the next several years," he predicted.

Pho

#### Geisse Foresees Low-Cost Planes

Reduction in the cost of private planes to bring them within the reach of all but the lowest income groups is one of the primary needs of the aircraft industry today, John Geisse, personal flying administrator of CAA, said in an address before the spring meeting of the American Society of Mechanical Engineers at Chatanooga, Tenn. He predicted between 300,000 and 500,000 personal planes will be in use within 10 years.

### CAA Engineers Consider Means of Applying Principles of Radar to Commercial Aviation

Means of adapting the principles of radar to commercial aviation is one of the major projects under way at the Civil Aeronautics Administration Experimental Station, Indianapolis. CAA engineers say that although radar was developed and widely used during the war, it will be of little use in commercial aviation in its present form.

Donald M. Stuart, chief of the technical development service of CAA, points out that the nation's airways are now converting from the use of low frequency to very high frequency radio navigation aids and that the application of radar will be stage three in the development of instru-

ment approach and landing.

Stuart says the first use of radar probably will be in air traffic control. CAA engineers are now planning the installation of a scanning screen in the Indianapolis control tower for use in approach control and landings. When the value and the technique of operation of the screen has been established, similar screens will be put in traffic towers serving the 36,000 miles of airways.

Second use of radar in commercial flying, according to Stuart, probably will be as a distance indicator in airplanes, a device by which the pilot will be told his exact distance from his destination, or from an obstruction to his flight.

The third probable use of radar will be a collision-prevention device to warn the pilot of approaching planes or of objects on the ground. CAA engineers say present Army equipment might serve that purpose, but that it is too heavy for the commercial transport and would entail the use of additional crew members.

CAA spokesmen add that these three projects are all the CAA can afford in the development of the use of radar at the moment. This year the CAA has only \$87,000 for the development of radar, but more extensive research will be feasible in the new fiscal year, beginning July 1. The necessity for seeking a separate appropriation for each specific project at the Experimental Station has prevented many parallel studies on other radar equipment turned over to the CAA by the Army and Navy at the end of the war.

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Right now we have what we believe to be the finest service and overhaul facilities in the United States, with a large group of highly skilled personnel, many with 10 to 28 years' experience in Aviation. Many of these men have been with Grand Central Airport Company for more than 10 years.

CALIFORNIA

PRECAUTION - PRECISION - SAFET

#### Delivery by Parachute

National Skyway Freight, Inc., West Coast non-scheduled carrier, has completed delivery by para-chute of 70 boxes of silver table settings valued at \$30,000. The deliveries were made in conjunction with General Textile Mills, New York, manufacturers of a non-os-cillating "baseball" type parachute, and Wallace Silversmiths, Walling-



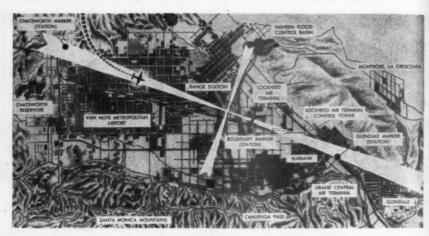
Cargo Parachutes Loaded in DC-3

ford, Conn., producers of the table

Deliveries were made to Wallace dealers at New Haven, Conn., New York, Newark, Philadelphia, Cleveland, Detroit, Chicago, St. Louis, Atlanta, Memphis, Tulsa, Dallas, San Diego, Los Angeles and San Francisco with a DC-3 chartered

from National Skyway.

The "baseball" parachutes were made of cotton handkerchief cloth, nine feet in diameter. They were released by static line from about 300 feet altitude. Each 'chute load weighed about 30 lbs., and in no case was damage reported in the drop.



Instrument Approach—Former minimums have been restored by CAA at Lockheed Air strument approach system. The installation includes a range station, two compass locator stations ("Hi" markers) and a boundary marker station. The new system will speed up traffic at the terminal, now one of the five busiest airports in the country. A guided pullout is one of the features of the new navigational facilities, enabling the pilot failing to make contact at minimums to pull out without changing course. Prior to installation of new facilities, CAA had increased both day and night minimums at Lockheed to 2,000 feet and two miles. Day minimums have been restored to 600 feet and one mile, and night minimums to 700 feet and two miles.

#### Forecasts Airborne Television

The use of television to cover news The use of television to cover news events from airplanes and helicopters was predicted by David Sarnoff, president of Radio Corporation of America, during the first public demonstration of airborne television at the Naval Air Station, Anacosta, D. C., recently. Unveiling the hitherto secret airborne television system developed by Navy and RCA, Naval officers saw the development as revolutionizing modern see air and land warfare. izing modern sea, air, and land warfare, with telecasts made from planes to land and sea combat headquarters giving commanders a split-second picture of battles as they progress.

#### VHF Radio on Rocket

Bendix Radio reports factory installation of is "Flightweight" transmitter-receiver-direction finder as standard equipment on the new 185 h.p. Johnson "Rocket." The very high frequency equipment is claimed to give superior reception and better range in the relatively high-speed Rocket than low power, medium frequency equipment.

#### New Distributors

New Distributors

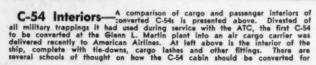
Switlik Parachute Co., Trenton, N. J., which
manufactured over 250,000 parachutes for the
armed forces during the war, has announced
franchise agreements with the following distributors: Aviation Supply Corp., Atlanta Municipal Airport, Hapeville, Ga.; Bob Trader
Aero Supply, Pittsburgh, Pa., Municipal Airport; Servaire Corp., Boston Metropolitan Airport, Norwood, Mass.; Pacific Airmotive Corp.
Glendale, Calif.; and Hawthorme Aero Supply. Glendale, Calif.; and Hawthorne Aero Supply, Orangeburg, S. C.

Orangeburg, S. C. Schweizer Aircraft Corp., Elmira, N. Y. has appointed 13 new distributors for its gliders. Aviquipo, Inc., New York City, has been named to handle Schweizer sales in all foreign countries, except Canada, where the distributor is Leavens Brothers Air Services

of Toronto.

Republic Aviation Corp.'s personal division announces appointment of Curtiss-Reid Flying Service Ltd. of Montreal as Sea-bee distributors for the Province of Quebec.







passenger use. Delta Air Lines, one of the first to contend that 44 seats are enough, submits the above interior view of its version. Looking aft, the buffet is to the left, a coat rack to the right. Unlike Braniff Airways, which is Installing two doors for passengers, Delta thinks one passenger door is ample, but permits passengers to enter two abreast. Pennsylvania-Central Airlines has found room to seat 58 passengers and two hostesses by placing an additional seat in the rear row, right, just forward of the port side door.



### One major AIRLINE can profit by this wealth of ADVERTISING EXPERIENCE



Let us show you our "Blueprint for Successful Airline Advertising" . . . a study based on 18 years of getting results for aeronautical advertisers

O some one major airline . . . whose expansion program demands advertising geared to send pay load skyward . . . this salesminded advertising agency offers an exceptional combination of experience, knowledge, vision and skill. We know flying . . . know how to sell it . . . have been doing it successfully since 1928.

Here's one example: This agency produced the fast-moving magazine and newspaper campaign which, starting from scratch last September, has helped win rapid and pers' minds and practices on air

2-0-2's. We'll show you more examples of successful campaigns produced for other advertisers with the "Blueprint."

But the "Blueprint" goes beyond success stories. It shows where and how major airlines are spending their advertising dollars . . . gives latest available figures on their expenditures . . . shows copy appeals and media they are using. It presents an analysis of the public mind on air travel . . . and an analysis of ship-

widespread acceptance\* for Martin freight. From such facts and figures, plus our 18 years of successful experience on the inside of aviation, it draws definite conclusions . . . which blueprint the basic course for giving your airline more traffic and more profit per advertising dollar invested.

> We're ready to show the "Blueprint for Successful Airline Advertising" to airline top executives . . . and we promise that you'll find the time well spent. No obligation. Phone or write to Wilbur VanSant, president, and name a date that will suit your

\* To date, airline purchasers of Martin's new twin-engine transports include Braniff, Chicago & Southern, Colonial, Eastern, Pennsylvania-Central, United Air Lines.

VanSant, Dugdale & Co., Inc. NATIONAL Advertising SINCE

Court Square Building, Baltimore 2, Md.

### New Equipment

### Bench Type Spot Welder

Weldex Model 263-A, recommended for spot welding light weight metals, offers the fol-lowing features and characteristics: 3 KVA. 220 volt. 60 cycle, single phase, air operated, foot controlled, electronically timed, adjust-



able pressure switch. The machine weighs 135 pounds ready to ship, and measures 21" high. 10" wide and 23" deep. Company reports that its sales and distribution organization is being expanded to handle this and other welding equipment. Weldex, Inc., 7351 McDonald Ave., equipment. Weld Detroit 10, Mich.

#### Two-Band Lear PX'er

In addition to the recently announced single band light radio called the PX'er, Lear, Inc. has now come out with a two-band version of the same equipment. The complete set, with transmitter-receiver, headphones, microphones and power supply, weighs 10 pounds. The two bands cover beacon and broadcast frequencies to receive control tower communication, range bands cover beacon and broadcast frequencies to provide control tower communication, range flying, direction finding on standard broad-cast stations, and reception of commercial radio programs. List price is approximately \$175 with all accessories except antenna and direction loop. Aircraft Radio Division, Lear, Inc., Grand Rapids 2, Mich.

#### Non-Metallic Ducting

Non-Metallic Ducting

Arrowhead Rubber Co. has placed on the general market a war-developed flexible ducting, made of glass cloth and rubber, which combines high insulation qualities and exceptional durability. Named "Airtron," it is available in diameters from one to six inches and is processed to withstand temperatures from minus 60 to 300 degrees F. The duct is reported to stand up under internal air pressures over 50 pounds per square inch at any temperature, and is not affected by gases or liquids other than concentrated mineral acids. In addition to standard diameters in any length, specialized shapes can be produced for unusual new or replacement installations. Additional information obtainable from American Aviation or from Arrowhead Rubber Co., 2244 E. 37th St., Los Angeles 11, Calif.

#### Prime Manufacturers in Product Field

Chance Vought Aircraft division of United Aircraft, has developed a metal faced sandwich material, to be called "Metalite," which com-pany engineers say will ald in development of high speed aircraft by reducing skin wrinkling and parasite drag. The material, which pre-sents a mirror-smooth surface, consists of thin sheets of aluminum alloy separated by a thick, low density core of balsa wood which is bonded into a light but rigid unit. "Metalite" can be shaped into large curved or flat sur-faces with a considerable reduction in the internal stressing required in conventional con-

Boeing Aircraft Co., in connection with the development of the Stratocruiser and the new B-50 Superfortress, has produced a quick action landing gear actuator which cuts retraction time from 28 to less than nine seconds and extension time from 25 to between two and extension time from 25 to between two and three seconds. A major advantage is in quick take-offs from restricted areas as a result of quick elimination of landing gear drag. The actuator uses a new principle, with a jack screw assembly of the recirculating ball bearing type consisting of an endless circuit of ball bearings traveling between a screw and

Glenn L. Martin Co. reports that one of its employes, C. E. Adreon, has developed a hand-bending tool for small tubing claimed to give bending tool for small tubing claimed to give faster and more accurate bending than ordinary hand methods. The device consists of a steel base, a revolving radius rod with handle for turning, a stop block grooved to hold the tubing, and a movable radius block for guiding the tubing around a bend roll which is marked out in 360 degrees.

Fog-Piercing Airport Lights

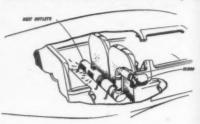
High-intensity glareproof lighting which en-ables a pilot to pick up a runway outline long before the runway itself is visible, is becoming available

for commercial in-stallations after wartime proving at military airfields in the Aleutians, Labrador and other areas. foggy lighted approach area is said to be visible through fog, smoke or dust to a pilot a mile away when



#### Janitrol Heater for Cessna

A 15,000 Btu aircraft heater, of the same basic type proven during the war in several types of fighter aircraft, is now being provided in complete kits for installation in the Cessna UC-78. Illustration shows location of the heater on the floor of the Cessna between front and back seats, with arrows indicating heat flow from the diffuser. Summer ventilation is obtained from the same installation. Complete



kits rather than separate components are furnished to permit local installation on planes now in service. All necessary parts, fittings and instructions are included, and installation time varies from four to eight hours depend-ing on local facilities and talent. The Cessna may be modified for installation on other small and medium aircraft. Additional information available. Janitrol Aircraft Heater Division, Surface Combustion Corp., Toledo

1. O. Vari-Stand for Loading

This Vari-Stand for p

ssenger loading and unloading is one of the new items recently announced by Hammond Mfg. Corp., Huntingdon Park, Calif. Featuring steps which remain level at any angle of the stand. it has a hydraulic lift with pawl and ratchet on auto-matic safety at any height. Hand rail tubing and fenders are of polished aluminum, base is of steel, and treads and risers of Good-

rich "Avtrim" are available in five colors.
Pneumatic or molded rubber tires are optional.

Fueling Ladder

This fueling ladder, for DC-3 and larger aircraft, permits one-man fueling with minimum climbing

around on the plane and with maximum safety. Made of safety. Made of steel tubing, the ladder is mounted on eight-inch casters in front and 12inch wheels in the rear. Casters and wheels have molded rubber tires and on ron Ladder bearings. can be set 6' 7" up to from Stand is raised by a hand winch with double drum and cable, with cable, and safety lockings pin dogs. Hose and dogs. Hose nozzle is held by a sheave and raised with the stand. Total weight of the is around Produced pounds.



by Hammond Manu-facturing Corp., Huntington Park, Calif.

### COX and STEVENS AIRCRAFT CORP.

MINEOLA, N. Y.

DESIGNERS AND MANUFACTURERS OF SPECIALIZED AIRCRAFT COMPUTERS AND WEIGHING EQUIPMENT



MODEL VW NAVIGATIONAL COMPUTER AIRCRAFT ELECTRIC WEIGHING KIT THE LOAD ADJUSTER

### PIPER CUB OR DC 3

• SPARTAN AERO REPAIR...100% C.A.A. Approved Station No. 50... has the modern facilities and skilled workmen for repair, overhaul or complete conversion of all types and sizes of aircraft. No job is too large—no job is too small. Spartan service is today being utilized by private owners of aircraft ranging from Piper Cubs to DC 3.

... Spartan has the modern facilities and skill to repair and overhaul...



(Above) Section of the Spartan Airplane Overhaul Department.



Spartan Aero Repair Is America's most conveniently located station...in the heart of the nation and the center of America's finest flying country.

## Interiors Custom Built to Your Own Specifications

Complete conversion of military aircraft purchased from surplus. Interiors re-designed and re-built for comfort and practical efficiency... or custom built according to your most elaborate plans. Repair and overhaul of everything on a private airplane whether it be of wood, fabric or metal construction—also expert service for all the component parts—engines, propellers, radio, instruments, etc. WRITE for complete information.



Division of Sporton Aircraft Company
TULSA, OKLAHOMA

### ENGINEERS WANTED

### Mechanical Electrical Civil

Preferably those with

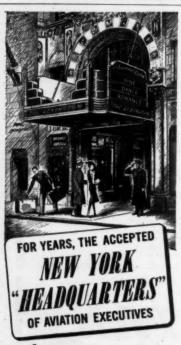
Experience Adaptable to Aircraft

### Layout Draftsmen Aerodynamicists Stress Analysts

Or others with at least several years of engineering experience which will serve as a basis for aircraft work.

Permanent positions are available in the engineering of such planes as the Martin 202 transport, commercial version of the Martin MARS, and other new commercial and military commitments. Write including full information on education, experience and background.

to Director of Engineering Personnel The Glenn L. Martin Company Baltimore 3, Maryland



Hotel Lexington

LEXINGTON AVENUE AT 48th ST., N.Y. C. 17

HOME OF THE Hamailan Loom

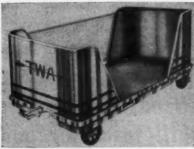
CHARLES E. ROCHESTER, Vice-Pres. and Mag. Div.

#### Microtorque Potentiometer

The Autoflight Microtorque Potentiometer, developed by G. M. Giannini & Co., Pasadena, Calif., is said to require negligible force to operate. It can be used for remotely indicating altitude and to operate recorders and other flight test equipment.

### Hammond Baggage Cart

Hammond Mfg. Corp. has placed on the market for airport use a 3 x 6 foot baggage cart with a capacity of 1200 pounds. It has retracting couplers fore and aft for convoy



use, and may be used with fork lift trucks or by itself. Manually controlled brakes and foot operated truck locks are standard. Modern design is enhanced by use of polished aluminum, reinforced with plywood, and chrome bumpers.

#### Fleximold Radio Shielding

An improved item in the Titeflex line of shielded conduit uses a flexible all-metal inner core covered with metallic outer braid and a synthetic rubber Jacket. The Jacket on this "Fleximold" conduit is intended to increase resistance to rough usage, vibration fatigue. fluids and extreme temperatures. Titeflex, Inc., 500 Freylinghuysen Ave., Newark 5, N. J.

#### Quick Release Hook

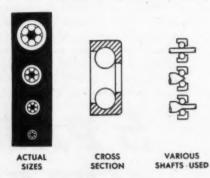
An all purpose quick release hook adaptable to glider or banner towing has been announced by Schweizer Aircraft Corp., Elmira, N. Y. It is constructed of high tensile steel finished with cadmium plating and will safely support loads of from 500-1,000 lbs. It has a breaking load of over 3,500 lbs.

### Lightweight Transformers

A new series of Sub-Ouncer transformers originally developed for military application is now being made available by United Transformer Corp., New York 13, N. Y. The new units measure only 9/16 x % x % ins., and weigh only % oz. Five standard items are available for immediate delivery.

#### Angular Contact Bearings

Illustrated below in actual size is a new series of angular contact ball bearings which will take thrust or radial loads without use of caps or retainers. Bearings are made of



chrome alloy bearing steel, with primary applications in accelerometers, electric motors and scale mechanisms. Brochure describing this series and other miniature bearings is available. Miniature Precision Bearings, Keene, N. H.

### Technical Booklets

Inspection lights for viewing inaccessible wing and fuselage locations are illustrated in a 24-page booklet now available. These "Vanco" lights, available both with flexible cord and with mirror attachments. were developed by Van Wagner Co. in cooperation with American Airlines technicians and are available in several different types or in complete inspection kits. Van Wagner Co., 89-01 113th St., Richmond Hill 18, N. Y.

Airport fueling system equipment, including the Erie submerged turbine pump, gasoline dehydrator and Erie JR and SR fueling pits, is described in several leaflets available from Erie Meter Systems, Inc., Erie, Pa.

Vibrashock unit mount and related Robinson vibration control equipment is illustrated and explained in a catalog just prepared. Aircraft applications are listed, and specifications and illustrations are given for the three major series of vibrashock unit mounts. Robinson Aviation, Inc., Teterboro Air Terminal, Teterboro, N. J.

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Shop tools, lockers and bins, welding equipment and scores of other shop and hangar items are enumerated in the latest indexed catalogue put out by Precision Equipment Co., 32 N. State St., Chicago 2, Ill.

Abrams Instrument Corp. and Abrams Aerial Survey Corp., Lansing, Mich., has catalogued its photographic and mapping products and services in a pocket-sized booklet.

Pocket slide rules are suggested as gifts and goodwill builders in an illustrated four-page folder prepared by Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41, Ill.

Fuel injection equipment for aircraft engines from 50 to 300 hp is illustrated and described in a six-page brochure available from the manufacturer, Ex-Cell-O Corp., Fuel Injection Division, Detroit 6, Mich.

Tachometers, stationary and portable, are available in nine different types illustrated in bulletin No. 1045 put out by Herman H. Sticht Co., 27 Park Place, New York 7, N. Y.

Rivnuts, internally threaded and countersunk tubular rivets which can be used as a rivet, nut plate, or both have been described in a small booklet prepared by the developer, B. F. Goodrich Co., Rivnut Division, 500 S. Main St., Akron, O.

Franklin's 150-hp engine is described as to specifications, construction and performance. Sixteen pages, with illustrations and performance chart. Aircooled Motors Corp., Syracuse, N. V.

Powrarm work holder and positioner, with various available adapters, is described in manufacturer's catalog insert. Garfield Engineering Corp., 124 S. Market St., Wichita 2. Kan.

"Civilian Wings for Everyone," a 40-page said for putting flying across to the uninformed citizen and for enhancing the knowledge of the average enthusiast, is being issued by Shell Oil Company's aviation department, 50 W. 50th St., New York 20, N. Y.

Celanese synthetics for the electrical industry, a booklet describing uses of synthetic sheet, film and folls, molding materials and yarns in various electrical applications has been released by Celanese Plastics Corp., 180 Madison Ave., New York 16, N. Y.

Design details of the Goodyear Aircraft Corp's Model K airship have been reprinted by that company in illustrated and diagrammed pamphlet form. Author is Capt. C. V. S. Knox, USN, Bureau of Aeronautics Representative for Goodyear.

Information on the use of pallets in industry is containd in a booklet on "Generalift", pallet of the General Box Co., Chicago, from whom free copies can be obtained.

Conclusions of an analytical study of aircraft accidents involving wire collisions have been released in a pamphlet, "Avoid Those Wires," written by Roscoe B. Bancroft for the CAB's Safety Bureau.

### Three New Helicopter Models Near Preliminary Flight Tests

### 'T/G Sunbeam' Designed for Pilot and Four Passengers

Interest in rotary-wing aircraft increased during the past fortnight as manufacturers revealed details of three new helicopters, now nearing completion, which will be flight tested within coming months.

The "T/G Sunbeam," a five-place tandem-type helicopter, propelled by four-bladed fore and aft rotors, under construction by R. T. Tiedje, Los Angeles machine shop owner, should be ready to fly within three months. Tiedje's craft, designed to carry pilot, and four passengers, nears the end of a three-year developmental program.

The Sunbeam is powered by two 180-hp, six cylinder engines connected with a drive shaft running through the fuse-lage so that either engine will operate both rotors in the event of power failure. Controls are hydraulic. The streamlined fuselage is 29 ft. long, with pilot in front and the passenger cabin amidship between the engines. Construction of the prototype model is mahogany plywood; rotor blades are metal. Empty weight is 1800 lbs.

Tiedje believes the Sunbeam can be marketed in the \$5000 class, plans to organize the T/G Aviation Co. to manufacture the craft.

Another development was the first formal statement on production plans of United Helicopters, Inc., at Berkeley, Calif. Stanley Hiller, Jr., founder of the firm, released descriptions of the company's two-passenger "Commuter" helicopter, a co-axial craft scheduled to make demonstration flights this summer.

The Commuter model, powered by a 150-hp, four-cylinder engine, is designed for the private-owner market and will be priced at approximately the same figure as a conventional airplane of equal horse-power. The rotary wings consist of two sets of opposite rotating blades, driven by the aircooled engine located behind the passenger compartment. Gross weight is 1600 lbs.; weight empty, 1080 lbs.; maximum cruising speed, 100 mph.

Another new helicopter, a commercial model of the Army's light-weight XR-9B, nears completion this month, according to the manufacturer, G & A Aircraft, Inc., of Willow Grove, Pa., a subsidiary of Firestone Tire & Rubber Co.



The Two-Passenger 'Commuter'

### North American Sets Up Line for Personal Plane

North American Aviation is setting up a production line for its new all-metal, four-place "Navion" in the company's former tooling building and already has started the first production model on the line.

North American's production schedule calls for first deliveries in June, although it may be July before a plane actually is ready for delivery. Manufacturing schedule has been established for production of 10 planes a day by summer. Work orders have been issued for three blocks of 250 planes each or 750 in all as the initial manufacturing order. Price of the plane has been fixed at \$6,100 flyaway Los Angeles.

#### Stelle Leaves War Assets

Stanford J. Stelle, who has been in charge of surplus aircraft maintenance and salvage operations for the aircraft division, War Assets Administration, has resigned to become manager of United Air Services, Ltd., of Burbank, Calif. In his new position he will be engaged in charter and development activities on the West Coast.

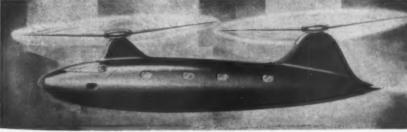
#### New Locations

The export division of Lear, Inc., formerly located at 1860 Broadway, has been moved to 50 Broad St., New York City. Lazare Gelin continues as manager of the division.

continues as manager of the division.
United States Aviation Underwriters, Inc., has opened its new eastern division with headquarters in the home office at 80 John St., New York City. James R. Graham will manage the new office.

Manage are new office.

Wright Aero Ltd., West Coast representative of Wright Aeronautical Corp., is moving its offices from 6030 Wilshire Blvd. to 434 N. LaBrea Ave., Los Angeles.



Artist's Sketch of the 'T/G Sunbeam'

### Lodwick Firm Gets B-25 Conversion Data From North American

North American Aviation, Inc., has turned over to Lodwick Aviation Industries, Inc., of Lakeland, Fla., all its engineering data for the modification of the B-25 Mitchell bomber for a CAA airwordhiness turne certificate.

airworthiness type certificate.

Originally, North American had planned to set up its own depot to convert surplus B-25's into executive type ships. The company had received about 10 requests from fliers like Jimmy Doolittle who felt the Mitchell would make a highly satisfactory executive plane because of its excellent performance and because they had seen examples of military models converted for similar use by General Elsenhower and other Army commanders. J. H. Kindelberger, president of North American, also had a B-25 equipped with seats for 10 passengers, a work desk and other executive equipment.

North American had practically completed the tests looking toward CAA certification, using the Kindelberger plane, incidentally, when the ship crashed into the Pacific Ocean on a test flight and was lost. The company decided there wasn't sufficient business to justify acquiring another plane and starting the tests all over, especially as it was busily engaged in getting ready for production of its new four-place personal plane, the "Navion."

So that those prospective buyers who were interested in acquiring surplus

so man mose prospective buyers who were interested in acquiring surplus B-25's for executive use might be able to get them converted, however, North American turned its data over to Albert I. Lodwick, head of the Florida company. W. Averell Harriman, recently appointed

W. Averell Harriman, recently appointed U. S. ambassador to Great Britain, has purchased a twin-engine Beechcraft and had it converted for executive use. Lodwick Aircraft Industries, Inc., of Lakeland, Fla. made the reconversion.

### Taylorcraft and Aeronca Expand Plant Facilities

Taylorcraft Aviation, Alliance, O., and Aeronca Aircraft Corp., Middletown, O., last fortnight announced major expansion programs to step up aircraft output.

Taylorcraft will spend \$1,000,000 on its expansion, which includes a new assembly wing embracing 200,000 square feet of floor space. Other construction includes a new railroad spur. Three buildings have been completed at the plant since V-J Day at a cost of \$150,000.

since V-J Day at a cost of \$150,000.

Aeronca acquired 75,000 square feet of additional manufacturing space at Vandalia, O., for manufacturing, offices, warehousing and flight operations. The building was formerly used as a modification center. More than 500 persons will be employed.

### Feirey to Build Rotary Wing Craft

Fairey Aviation Co. of Middlesex. England, will build a new type of rotating wing aircraft to be known as the Gyrodyne, incorporating features of both the autogiro and helicopter. The Gyrodyne has five seats and is designed for charter, taxi and private flying. Design and performance details have not yet been published.

## the certified spin-proof plane ERCOUP \*Certified incapable of spinning by U.S. Civil Aeronautics Administration ENGINEERING AND RESEARCH CORPORATION Riverdale, Maryland Write for color booklet

### Hanufacturing Personnel

Walter E. Lucle, formerly controller and assistant secretary and assistant treasurer of Kaiser Cargo, Inc., has joined Kellett Aircraft Corp. as executive assistant to R. G. Kellett, executive vice president

assistant to R. G. Kellett, executive vice president and treasurer.

Richard H. Depew, Jr., who recently resigned as chief of the aircraft sales division, War Assets Administration, has been named vice president in charge of operations, Ludington-Griswold, Inc., Saybrook, Conn.

Harlan M. Ellis, sales manager of Hamilton Standard Propellers division, United Aircraft Corp., has resigned due to pressure of personal business affairs. Simultaneously, George L. Estes, Jr., assistant West Coast representative of United Aircraft Service Corp., became an assistant seles manager of Hamilton Standard in charge of contact work



Wainscott

with airlines and aircraft manufacturers. William P. Huxley is assistant sales manager in charge of orders. William H. Habicht, of the engineering department, has been transferred to United Aircraft Service Corp.'s West Coast office.

Jean H. DuBuque, assistant to the sales manager of Beach Aircraft Corp., has been appointed advertising and public relations director of Lear, Inc.

W. H. Klenke, Jr., has been appointed manager of Consolidated vultee Aircraft Corp.'s newly opened office at 420 Lexington Ave., New York City.

Milton E. Maske has been named a development engineer of Surface Combustion Corp., manufacturer of Janitrol aircraft heaters.

Howard E. Walnscott, an employe of Beach Aircraft Corp. since 1934, has been appointed chief inspector of the firm.

8. C. Reciputi, formerly associated as design engineer with several of the country's airframe manufacturers, has been added to the sales department of the hydraulics division, Saval Co., Los Angeles. He will be headquartered in the company's eastern office, temporarily located at 47 Teresa Place, Hempstead, N. Y.



C. A. Stillwagen has been promoted by Ryan Aeronautical Co. to the position of controller. He will retain his position as corporate secretary and remains as secretary, controller and a member will be board of the subsidiery Ryan School of Aeronautics. Dale H. Ockerman, general supervisor of the company's eccounting department, has been promoted to assistant to the controller. Richard W. Darrow has been appointed director of public relations for Glenn L. Martin Co. R. W. Gemmell has been named manager of Westinghouse Electric Corp.'s aircraft sales department. Walter A. Bowers, formerly vice president and treasurer of Lawrance Aeronautical Corp., has been elected vice president and treasurer of Aireon Manufacturing Corp.

J. Kenneth Hull is assistant general service manager, and Clayton B. Snow is manager of the customer's department of the recently expanded Lockheed aircraft service division, Lockheed Aircraft Corp.



Highest CAA-designated airport in the U.S. is at Creede, Colorado . . . elevation 8700 feet. The Stinson Voyager 150 has repeatedly taken off into the thin air at Creede with a full load . . . adalways with a take-off run of 1350 feet or less! And at sea level its take-off run is a short 550 feet!

The extra power that makes the Voyager 150 a versatile performer at high altitudes will whisk you out of a cow pasture or off a golf fairway . . . with the same case as you'd take off from the best airport in the land!

## This plane thrives on thin air and cow pastures!

The Stinson Voyager 150 has "git-up-and-go" to spare!

And abundant power to take you where you want to go isn't all that you'll like about this new personal plane by Stinson.

You'll like the luxury and comfort of the Voyager 150's soundproofed and ventilated cabin . . . its richly upholstered, adjustable seats, with room for 3 passengers and pilot.

You'll like the Voyager 150's maneuverability and ease of handling. With this plane you can use fields that aren't practical even for smaller planes if they lack the Voyager 150's complete controllability.

A 500-mile trip in the Voyager 150 is only an afternoon's jaunt . . . and without refueling. It cruises



Manufactured under Civil Aeronautics Administration Type Certificate No. 767

at 125 m.p.h., has a maximum speed of 133 m.p.h. And operating costs compare favorably with the cost of running your car.

The Voyager 150, like all Stinson planes ever built, has an inherent stability that spells safety in flight. Wing slots are built in to make the Voyager 150 stall- and spin-resistant. And there are wing flaps to slow down landing speed. It is manufactured under Civil Aeronautics Administration Type Certificate No. 767.

Let your local Stinson Dealer tell you more about this new plane by Stinson, the company that has built quality personal planes for more than 20 years. Ask him for a free illustrated brochure, or write Stinson Division, Consolidated Vultee Aircraft Corporation, Wayne, Michigan.

Stinson... EASY TO BUY... EASY TO FLY

Stinson Division. Consolidated Vultee Aircraft Corporation, Wayne, Michigan

## **Air Express Goes** Everywhere FASTER!



### Specify Air Express-Better Business Buy Than Ever

MILES	2 the.	S Sec.	25 lbs.	40 lbs.	Over 48 lbs Cents per lb
149	\$1.00	\$1.00	\$1.00	\$1.23	3.07€
349	1.02	1.18	2.30	3.68	9.21c
349	1.07	1.42	3 84	6.14	15.35c
1049	1.17	1.98	7.46	12.20	20.70s
2349	1.45	3.53	17.45	28.24	70.61c
Over 2250	1.47	3.48	18.42	29.47	73.68c

In the face of rising prices, Air Express rates have been slashed 22% since 1943, saving business millions of dollars. And rates include special pickup and delivery in all principal U.S. towns and cities - with fast, co-ordinated air-rail service between 23,000 off-airline points. Service direct by air to and from scores of foreign countries in the world's best planes, giving the world's best service at lowered cost.



#### **Financial Review**

### **Healthy Condition** Of Industry Shown In 6 Annual Reports

THE HEALTHY financial condition of the air transport industry was re-flected last fortnight in the annual re-ports of six carriers. Half of the carriers reporting showed substantial gains over the previous year, the others slight drops. All of the carriers noted the effect of reduced passenger fares on net earnings

for 1945, and all reported dividends. These were highlights from the reports:

• American Airlines—Showed net profit of \$4,339,458 in 1945, compared with \$4,396,163 in 1944. Net profit for the year just ended amounted to \$3.36 per share on 1,290,567.30 shares outstanding, compared with \$3.44 a share in 1944. Earnings for 1945 before tax provisions were \$8,139,458, compared with \$3,446,163 in 1944. Surplus after payment of dividends was \$19,689,737, and operating costs for 1945 were 81.9¢ per airplane mile, compared with 36.2¢ in 1944. Gross operating revenues were \$47,416,000 vs gross operating expense of \$39,240,000.

• Braniff Airways-Showed net earnings \$849,838 and dividends of \$600,000 for 1945.
Daily schedules increased from 20,213 to 27,296 and seat miles available to the public increased from 11,600,000 to 15,800,000. 21,250 and seat miles available to the public increased from 11,600,000 to 15,800,000. Passenger fares were down from 5.02¢ per mile to 4.40c per mile, and air express rates were cut eight percent.

• Eastern Air Lines—Earned net profit of \$2,126,294 or \$3.56 per share after federal \$2,126,294 or \$3.56 per share after federal taxes, compared with \$1.499,337 or \$2.51 a share in 1944. Had the company escaped excess profits taxes, earnings would have amounted to \$8.20 a share. Total revenues were \$27,169,869 in 1945, compared with \$18,806,266 in 1944. Operating expense was \$18,878,575 in 1945, compared with \$13,106,292 in 1944. Total current assets were \$23,212,902 current liabilities \$11,50,963 and 929 in 1944. Total current assets were \$26,313,292, current liabilities \$11,503,063, and net working capital was \$14,810,229.

• Pennsylvania-Central Airlines-Showed net profit of \$441.467, compared with \$404.635 in 1944. Total revenues were \$10,979,000, compared with \$6,217,000 in the previous year. The company operated 191,354,000 revenue passenger miles in 1945, compared with 90,120,000 miles in the previous year.

• Trancontinental & Western Air—Showed net income after taxes of \$1,813,576 or \$1.84 per share of capital stock, compared with net income of \$2,752,960 or \$2.82 share in 1944. income of \$2.752,960 or \$2.82 snare in 1994. Reductions in passenger and mail rates were given as reasons for the decrease. Operating revenues in 1945 were \$33,776,106, a third greater than in the previous year. Operating expenses were \$30,575,841, compared with \$20,569,472 in 1944. Revenue ton miles were 72,663,873, up 51% over the previous year.

• Western Air Lines—Showed an operating profit of \$386,542, and net income of \$208,102 profit of \$386,542, and net income of \$308,192 or 51¢ per share after taxes. Passenger revenue total \$5.653,829, up 78% over 1944. Mail revenues totaled \$1,239,396, up 48% over the previous year. Operating expenses total \$5,624,543. Current liabilities were listed at \$1,407,813 vs current liabilities of \$300,000. Total surplus was listed at \$1,596,869.

### Scottish Line Surveys Atlantic

Scottish Aviation Ltd. completed its first transatiantic survey flight for passenger and cargo charter services between Scotland and New York. A converted Liberator flew the route Prestwick-Iceland-Gander-New York. The Duke of Hamilton and David F. Mac-Intyre, both directors of the company, stated that charter services would be offered in that charter services would be offered in about six weeks if current negotiations with U. S. authorities are successful.

# The Birdmens Perch By Major Al Williams, ALIAS, "TATTERED WING TIPS," Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

DO NOT DISTIPLE TO THE PARTY OF TAXABLE PARTY OF TAXABLE

We've been reading ads about a gyro that makes landings!

Yessir, this nefarious instrument flies the beam...makes a standard instrument approach...procedure turns...puts your plane on the runway—automatically!

Think what this infernal gadget will do to the Hangar Fliers, the Perch Pilots, the Apron Angels! No more: "... but with superhuman skill, I..." and "... a sixth sense told me..." and "... flat on my back at only 25,000 feet ..."

Pretty soon, all the glorious stories that are told (and invented!) about flying in soupy weather will conclude: "... so I pushed the 'Landing' button—and landed!" We'll be switchboard operators! We'll be dial diddlers! We'll be bums!

Who cares if it's Spring!

#### MERRY-GO-ROUND

Every time you pick up a paper, or read

this magazine, you read about improved aircraft engines.

And, every time an engine is improved, chances are that proper lubrication has been made more difficult and more critical.

Reduction gears slowed down prop tip speeds, sure! But they also introduced terrific gear-tooth pressures—which must be borne by a film of oil. The supercharger was a great improvement for pilots—but one of the knottiest problems ever handed out to lubrication men. Controllable pitch props, higher compression ratios, and a dozen other engine improvements, have all contributed special problems to aviation engine lubrication.

We reminded you of these problems to



remind you how important the Alchlor Process—Gulfpride Oil's extra refining step—is to you. For by extracting extra of the sludge-forming and carbon-making hydrocarbons from Gulfpride Oil, the Alchlor Process gives your lubrication system extra of the tougher, harder-working oil molecules.

Or an extra margin of safety in the proper lubrication of the most critical parts of your engine!

#### LITTLE KNOWN FACTS DEPT.

Pfc. James H. Dilonardo, MAAF,

Marfa, Tex., is something of an aviation historian. He's also a commissioned Perch Pilot (bottom rung) for the following "Facts":

"Four-bladed props were used by the English back in World War I . . . while 'chin guns' were installed on the GA-2 in the early 20's!"

Here's Perch Pilot (br) Dilonardo's 2nd "Fact" (which means he has only 3 more to go for promotion to Senior Perch Pilot):

"The first B-17 was a helicopter designed by a French engineer in 1915!"

And Charles R. Foltz, Kansas City 3, Mo., is commissioned for:

"If dropped a foot apart, the rivets from our biggest flying boat would stretch out in a line about 260 miles long!"



That's all there is to it . . . Send "Fact" and proof to us at the address on the top of the page, and, suddenly, fame may be yours! Not to mention a Commission of Perch Pilot (br)!

Gulf Oil Corporation and Gulf Refining Company...makers of











### Airlines' Revenue Passenger Miles Jump 54% In 1945, but Load Factor Slips to 87.7%

The traffic spiral of the domestic airlines ascended to new peaks during 1945, when 54% more revenue passenger miles, 30% more express-freight ton-miles, and 27% more mail ton-miles were flown than the year previous. Reports filed with the Civil Aeronautics Board, however, showed the load factor slipping slightly from 89% in 1944 to 87.7%.

Continuing to dominate the traffic

scene, the four largest carriers together-American, United, TWA, and Eastern— operated 68% of the total revenue pas-senger miles, 86% of the mail ton-miles, and 82% of the express-freight ton-miles

The airline industry, according to CAB figures, flew 94% of their scheduled mileage in 1945, with 19.6 average available seats per mile. The average airplane load on the commercial airlines consisted

of 17.3 passengers, 632 pounds of mail, and 213 pounds of expres

A glance backwards to 1941 reveals that A glance backwards to 1941 reveals that the airlines have made their greatest relative traffic advances in mail and express-freight. The 65,081,953 ton-miles of mail flown in 1945 represented a 395% gain over the 13,130,000 figures for 1941. Express-freight ton-miles showed a comparable 340% increase from 5,260,000 ton-miles to 23,176,474, while revenue pasenger miles were upped 153% during the same period, from 1,384,000,000 to 3,-505,038,767. Aggregate revenue passenger load factor in 1941 was 59%. load factor in 1941 was 59%.

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Summary of Domestic Air Transport Operations for 1945 (Compiled from Monthly Reports to the CAB)

	Revenue	Roy. Pass. Miles	Available Seat Miles	Rev. Páss. Lond Factor	Rev. Miles Flown	Mail Ton-Miles	A Freight Ten-Miles	
Airlines	1,299,305	801.237.008	890.806,824	89-936	47,988,164	13,326,053	4.891.432	
& Southern	35.154 300.957	2:±07.458	4.266.265 100.506.160	87.435 68.3%	8.279.336	2.469 449.384	10.448 370.774	
<b>1</b> · · · · · · · · · · · · · · · · · · ·	134.274	102 727 222	97.425.802 140.698.043	22.3%	3.017.391	175.018	233.438 91.412	
***********	190.803	400.700.010	836,706,258 34,288,624	\$3.7%	27.332.654 1.207.841	5,443,110 25.060	2,631,919 495,368	
inemt	153:029	44.360.321 70.210.637	\$8:888.30\$ 78:838.60\$	73.2%	3.365.554 8.838.186	287.018 648.079	65.576 127.236	
	330.469 730.469	#18.403.000 #18.460.773	247 143 443	70.0%	2.252.900 12.488.814	2.494.377	37.065 867.079	
	958.000 709.471	\$13.036.898 898.976.898	568.303.038 641.316.566	43.4%	31.897.593 40.103.862	21.130.865	4,818,863 8,058,173	
<b>46</b> ·····	0.823,666	3,808,038,767	3,992.840,143	87.738	218,118,306	45,051,063	23,178;479	

### **Financial Comment**

I. W. Burnham, II Burnham & Company Members of New York Stock Exchange

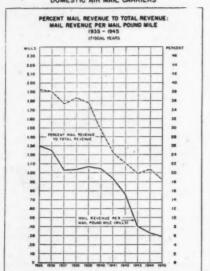
THE REPORT prepared for the Post-master General dated Mar. 15, 1946, and titled "The Future of Air Mail Transportation," analyzes the possibility of transporting all non-local first-class mail by air. The report reviews pay-ments made to the domestic air carriers and the railroads during the fiscal year 1944 during which period the payments for transporting mail to the former were \$28.5 million and to the latter \$129.6 \$28.5 million and to the latter \$129.6 million. The report states that, based on the 1944 mail volume, with all other factors being equal, a shift of long-haul first-class mail from the railroads to the domestic air carriers would have resulted in a reduction in payments to the rail-roads of approximately \$22 million and an increase in payments to the airlines of about \$81 million or a total of approximately \$100 0 million.

imately \$109.8 million.

The Post Office Department has been "shooting" for a 32c per ton-mile air mail figure. If this rate had been in effect mail figure. If this rate had been in effect during fiscal 1944 and assuming a shift of long-haul first-class mail from the ratioods to the airlines, the air carriers would have received a total of \$60.9 million, or an increase of \$32.4 million above the actual 1944 payments.

For the purpose of showing how such

DOMESTIC AIR MAIL CARRIERS



additional revenues might have been distributed among the domestic airlines, the estimated increase under the two as-sumptions has been allotted to the air-lines on a pro rata basis, reflecting the distribution of payments by the Post Office Department for the most recent 12-months period reported. From a dollar volume standpoint, the principal recipient of increased recently would have been increased revenue would have United Air Lines.

AIR LINE REVENUES (000 omitted)

	et 12 Months Mail Revenue	Period Fiscal Total Revenue	Year Ended Ju Existing Rates	30, 1944 32c per Yon-Mile
All American Aviation	8 621	\$ 636	3 2,824	\$ 1,400
	8,339	47,262	26.232	14,548
	597	7,920	2,524	1,400
Chicago & Southern Air Lines	288	4,711	1,207	670
Colonial Airlines	133	1.481	549	304
Continental Air Lines	653	3.092	2.744	1.922
Bretza Air Lines	850	8.943	3,812	1,948
Enstern Air Lines	2.068	25.381	8.671	4,809
Mid-Continent Airlines	3,136	3.079	8.891	4,930
Mational Airlines	398	3.757	1.648	913
	317	2,057	1,317	730
	1,644	11,605	6,805	3,774
Pennsylvania-Central Airlines	859	10,716	2,308	1,278
United Air Lines	9.474	39.348	40,940	22,705
Total	8 24 041	2147 108	<b>8100.067</b>	5 50 931

### TWA Plans to Buy 10% Of Iranian Airways Stock

TWA's annual report reveals that the carrier has made arrangements to purchase 500 shares, or approximately 10%, of the capital stock of Iranian State Airways at a cost not to exceed \$100,000. It is understood that TWA also has what amounts to a management contract with the foreign carrier.

The report also disclosed these other holdings: The investment in TACA Airways, S. A., has been increased to \$1,-650,000 through purchase of \$300,000 principal amount of TACA's 4% convertible notes. These notes were part of a total issue of \$1,410,000 due on Apr. 20, 1948. The notes were called for payment in January, 1946, and TWA elected to con-January, 1946, and TWA elected to convert them into 50,000 shares of TACA common stock. Following conversion, TWA held approximately 27% of the outstanding \$5 par value shares of TACA Airways, S. A. TWA's holding in Philippine Air Lines amounts to 28% of the shock

### **Aviation Underwriter Offers** Insurance on Hourly Basis

Aircraft fleets consisting of three or more planes may be insured, with respect to the aircraft liability coverages, on an hourly basis, it is announced by Associ-ated Aviation Underwriters. The following rates apply for basic limits for the commercial classification: public liability—03 per airplane flying hour; property damage—035 per airplane flying hour; passenger liability—05 each seat (includ-

ing pilot seats) per airplane flying hour.
Unless the risk involves operations
which are predominantly of a "for hire" nature, the division between pas for hire and passengers not for hire has now been abandoned in the interest of simplification, both in the application of the rate and insofar as the insured's records are concerned.

Iraqi Airways Flies Rapides

Iraqi Airways has begun services with de Havilland Dragon Rapides recently acquired in Great Britain and flown to Baghdad.

Reduced tax requirements and a high valume of sales were instrumental in offsetting drastic war contract cancellations and reconversion costs and helped Doug-las Aircraft Co. to close its 1945 fiscal year with a net income of \$8,955,754 after taxes, the company has reported in its annual report.

Commenting that the entry of several other large manufacturers into the limited commercial market and the release by the government of surplus equipment "strongly suggest the wisdom of candid and realistic appraisal" for the future, Doneld W. Douglas, president, said:

"In a greater degree than ever before, these trends and developments serve to endorse continuation of long-established policy in which the management carefully seeks to balance enthusiasm and progres sive planning for the future with sound, constructive current operations.

Sales for 1945 totaled \$744,682,664. state and local taxes were \$25,500,000, while wages and salaries totaled \$250,000,000. Dividends of \$3,000,000 were paid to 8,763 stockholders who received \$5.00 per share on 600,000

shares outstanding.

Contract terminations amounted to \$1,200, 00,000. Employment dropped from a 194 00. Employment dropped from a 1945 of 117,000 to 27,000. About half of the \$116,000,000 government-backlog orders at the end of 1945 were estimated remaining costs terminated contracts.

Commercial orders on the books were \$103,-000,000, but some additional contracts have since been signed. More than \$64,000,000 of

the backlog is in orders for the DC-6.
Working capital increased to \$64,283,123,

Working capital increased to \$64,283,123, a ratio of current assets to current liabilities of 1.94 to 1. Cash and government securities available at the end of 1945 amounted to \$42,865,541, plus an additional \$15,330,000 in government tax notes appropriated against a like amount of federal tax liability. Republic Aviation Corp., reported net income of \$1,889,778 or \$1.92 per common share for 1946, after deduction of \$3,636,074 for federal taxes. Aircraft sales totaled \$222,148,329 with gross income for all sources amounting to \$222,366,981. Year-end backlog was \$45,276,000, with \$33,698,000 consisting of ship to \$22,000,001. Yest-end because was \$45,276,000, with \$33,696,000 consisting of military orders for XF-12 planes and the P-84 jet fighter. Cash dividend during the year was 50¢ a share.

Beech Aircraft Corp., showed a net profit \$273,400,000 to the profit of \$273,400,000 to the profit of \$273,400,000 to the profit.

Meech Aircraft Corp., anowed a not profit of \$3,722,402, or \$9.30 a share for its 400,000 common shares for the fiscal year ended Sept. 30, 1943. Net profit for the preceding fiscal year was \$2,705,481, or \$6.76 a share. Sales were \$123,751,822, compared with \$90,468,577 for the previous year.

Boeing Airplane Co., declare a dividend of the procedure of the profit of the provious year.

\$1 per share payable Apr. 19 on outstanding capital stock. Boeing made payments in 1944 of \$1 each in April and November, but last year the only distribution was in April and no dividend action was taken in Novem-

Aero Supply Mfg. Co., Corry, Pa., reported net sales of \$5,503,709, gross profit of \$1,207,-251, and a final net income of \$148,051 for 1945. The company plans to expand its 1945. The company plans to expand i activities to enter fields outside aviation.

### Jack & Heintz Outlines Second Merger Proposal

Second step in the program for merger and broadening the scope of operations of Jack & Heintz Precision Industries, Inc., was made known with announcement of plans to merge into that company Eise-mann Corp. of Brooklyn, manufacturers of magnetos and other products. Stock-holders of both corporations will vote on the plan on Apr. 17.

### **Douglas Report Shows** Leading Aviation Securities

(Courtesy of Burnham & Co.)

WELL WARM STRONG PROLITINGS							Two
NEW YORK STOCK EXCHANGE			Bange for	& Bays	Range fo	3-29-40	Weeks
	Nigh	Low	Ended 3	Low	High	Low	Change
American Airlines	9534	71	9814	791/2	9354	80	4.58
American Airungs Enaiff Airways Enaiter Air Lines National Airlines Northwest Airlines Pan American Airways	2456	2556	2934	37 118	291/2	2816	1 894
Eastern Air Lines	1231/2 347/a	341/2	11734 2836	26	2934	9814	A4
National Airlines	861/2	45	9.2	48	823/4	80 81%	+ 354
Northwest Airlines Pan American Airways PennCentral Air.	27	201/2	231/2	2114	4216	40	1 100
PennCentral Air.	4834	361/2	411/2	381/2	621/2	8014	IS
Trans. & Western Air	8456	42	4654	43	47	4410	134 134 246
Pan American Airwaya PennGentral Air. Trans. & Western Air United Air Lines Western Air Lines	35	27	31	271/2	301/9	29	+ 240
MANUFACTURERS, BTG. Aviation Corp. Aviation Corp. pf. Beech Aircraft Boll Aircraft Bendix Aviation Boeing Cornsilidated Vuitee	1436	936	121/2	11%	121/2	1146	- 54
Aviation Corp. pf	831/2	1476	71 2654	2244	8814	8814	1 35
Seech Aircraft	351/2	34	3156	293/4	29	2014	
Boll Aircraft	88	80	82 33%	8034	B356	8336c	1 346
Boeing	35	261/2	311/2	311/6	35 29%	3344 273/4	
Consolidated Vuitee	24	2034	1956	9.72	1916	1736	- 156
Continental Motors	1254	724	10	734	81/4	839/8	- 146
Curtise-Wright "A"	341/6 1087/6	2354	311/8	2334	281/4	9934	- 654
Bouglas Aircraft	82	901/2	4934	461/2	4844	46 3914	136
Lockhand Aircraft	4814	3816	417/6	391/3	441/2	4234	- 55
Martin, Gione L	451/2	3744	27	83%	2616	2514	+ 156
National Aviation	2834 1656	1314	1436	9.936	141/2	1336	+ + + +
Republic Aviation	2134	1854	363/8	2934	2146	20	1 1 34
Sperry Corp	401/2 3736	33	363/6	3334	3846	34	+ 254
United Aircraft	106	91	95	3134	96	30 94	****
Bendix Aviation Booling Censelidated Vuitee Centinental Bloore Curtiss-Wiright Curtiss-Wiright Curtiss-Wiright Curtiss-Wiright Booglas Aircraft Wright Aero.		-					
AIRLINES							
Colonial Airlines	43	271/2	331/2	391/2	3244	2954	+ 34
Northeast Airlines	217/4	173/2	2014	881/2	10%	1946	I 11/2
Colonial Airlines Northcast Airlines Pan American Air. war.	14	94/6	11	0.42	1010	240	- 44
MANUFACTURERS, ETC.							
A A	231/2	2174	231/2	834	796	7	4 90
Aero Supply '8'	231/2	15	73/4 193/4	1936	301/3	1956	+ 140
Aero Suipris A. Air Bushinson Signis Air Bushinson Signis Air Bushinson Signis Airem Sifts Sifts Airem Sifts	854	814	81/2	814	84/2	89%	****
Air Investors cv. pf	174/2	111/4	1334	1314	1356	111/2	- 1
Aireon Mfs. mf	2234	2134	18	2734	174/2	14½ 23% 7%	- 254
Aireon Nfg. pf Aero Equip.  Bellanca Aircraft Brocas Corp. Browster Aero. Corp. Browster Aero. Co. A. i. Fairchild E & A. Fairchild E & A. Forman Air Chube Neothrop Aircraft Fiper Aircra	271/2	2134	2314	22	341/2 77/6	23%	+ 1 + 1 + 1 + 1 + 1
Bellanca Aircraft	311/2	834	2976	2534	3336	2816	- # # # # # # # # # # # # # # # # # # #
Breeze Corp.	SA/2	47/8	51/a		846	894	+ 56
Cossna Aircraft	104/6	#3.6s	93/9	816	1636	1896	+ 22
Fairchild C. & L	83/8	1336	756	251/2	714	7	T 36
Fairchild E & A	131/2	78	101	96	1001/2	97	= 456
Irving Air Chute	134/2	2.2	117/6	11	117/8	1334	- 10
Northrep Aircraft	1846	7%	143/6	1016	1234	1114	+ 11/2
Piper Aircraft	67/6	SS44	111/2 57/6	#1/a	84/2	85/4	
Ryan Aere.	10%	#8/a	87/9	81/4	2614	85/2	+ 136
Solar Aircraft	263/4	273/4	263/4	233/4	247/9	83	- 34 - 34
United Aircraft Pred	85/6	616	856	84/6	84/2	754	- 44
OVER THE COUNTY							
OVER-THE-COUNTER			March 2	12. 1946 Ask		March 20	Acked
AIRLINES			Bid	73	ed.	634	716
Air Carge Transport	*******		101/4	111	2	103/4	1114
All American Aviation			133/a	133	6	73	141/0
American Overseas Airlines			73	775	Sa .	291/2	76 301/2
Chicage & Southern Air Lines			30	264		251/2	281/4
Continental Air Lines	********		831/2	66		53	894
Expresses Acres	********		72/2	85,	4	73/4	111/2
Inland Airlines			103/4	215	ra ra	195/4	2014
AIRLINES Air Carpe Transport Alaska Airlines All American Aviation American Overseas Airlines Chicage & Southern Air Lines Continental Air Lines Soita Air Lines Stand Airlines Stand Airlines TACA Airways			1844	183		1834	1940
MANUPACTURERS, ETC. Aeronautical Products Aerona Aircraft & Biosel Aircraft & Biosel Aircraft & Biosel Airptane Airptane Columbia Aircraft Columbia Aircraft Columbia Aircraft General Aviation & Eng. General & Eng. General & Eng. Interstate Aircraft & Engine Interstate Aircraft & Engine Interstate Aircraft & Engine Interstate Aircraft & Engine Interstate Aircraft & Lusombe Airplane Mellott Aircraft Lusombe Airplane Menasco Mfg. Pacific Mfg. Standard Aircraft Pred.			71/2	73	4	836	834
Aeronca	*******		12	123	-	23/4	1134
Aircraft & Diosel	******		27/8 204/2	24	•	80	23
Airplane & Marine	*********		13/2	8		11/2	
Columbia Aircraft			11/2	39	:	344	234
Continental Aviation & Eng	*******		34/2	83	6	47/8	\$3/b
General Aviation Equip.			334	37/	6	31/4	21/2
Globe Aircraft	*******		61/2 9/8	67	8	61/6	84/2 7/a
Harlow Aircraft			9.76	43/	in .	37/8	45/4
Harvill Corp Engine			131/2	1.43	Se .	1356	141/2
Interstate Aircraft & Engine			43/4	145		47/8	\$54
Kellett Aircraft	*******		233/4	241	6	24	841/2
Liberty Aircraft	********		386	4 75		33/a 71/2	336
Menasco Mfg.	*******		83/4 143/4	184	6	2.6	1486
Pacific Airmetive	********		133/4 -	144	6	343/4	1946
Poliak Mfg.			43/4	8 75		43/6	47/a 73/a
			61/a	2.50	-		

Earlier, a group of individual investors quired financial interest in Jack & Heintz, Inc., through merger of that com-pany into Precision Products Corp. The consolidated company was incorporated in Delaware as Jack & Heintz Precision Industries, Inc., and at that time William S. Jack, now chairman of the successor company, said plans were under way for acquisition of other companies and new products.

#### Aircraft Acceptances Total 187

The Army and Navy received 187 aircraft during March bringing the total, excluding experimental types, to 525 for the year. Army acceptances totaled 122 and Navy 65. Included in the March deliveries were 8 heavy bombers, 2 medium bombers, 2 light bombers, 27 twin-engine fighters, 76 single-engine fighters, 7 heavy transports, and 65 special purpose craft.



Offering a comprehensive consulting service in the field of air transportation covering economic, technical and financial evaluations of traffic, equipment and management problems.

### ALVIN P. ADAMS AND ASSOCIATES

aviation Consultants

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### Classified Advertising

WANTED a pilot with some air line pilot experience to represent a well-established employee-representing organization. This is not a fiying position. Executive work only with some travel. Employer-employee relations handling ability necessary. Veteran preferred. Box 449, American Aviation, American Building, Washington 4, D. C.

MOTION PICTURE PHOTOGRAPHER.
Available Now. Aerial motion picture director-camerman, twenty years experience in planning and producing educational and public relations film. Desires to become affiliated with air transportation organization which is planning the use of pictures in its public relations work. Box 486, American Aviation, American Building, Washington 4, D. C.

POSITION WANTED—Navy Reserve Commander with 10 years active naval aviation duty and 5,000 hours, desires position with reliable aviation company or activity. 4 years air transport flight and administrative experience with Naval Air Transport Service in operations and command assignments during World War II. Navy pre-war experience consists 2 years battleship seaplane duty and 3 years flight instructor duty. Interested in flight administrative or flight work. Also consider non-flight position as aviation representative or salesman requiring thorough aviation background. Age 34, 3 years college. Christian, married and highest references available. Box 487, American Aviation, American Building, Washington 4, D. C.

### NATS Hopes for 82 Transports

Under its postwar plan of operation, the Naval Air Transport Service expects to operate 82 transport aircraft during the fiscal year beginning July 1, 1946. The Budget Bureau has allowed \$9,698,386 for the operation, repair and maintenance of the following aircraft: R5D, 66; R4D, 8; JRM, 4 and SNB, 4. Budget figures lump together fleet utility squadrons and aircraft for administrative use with NATS requirements at a total of \$38,343,064.

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